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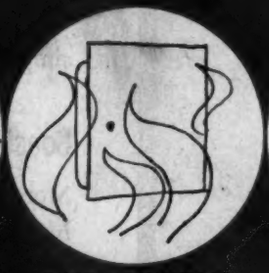

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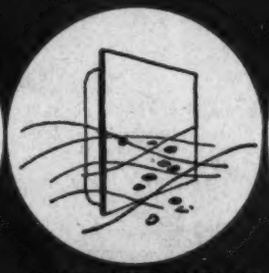

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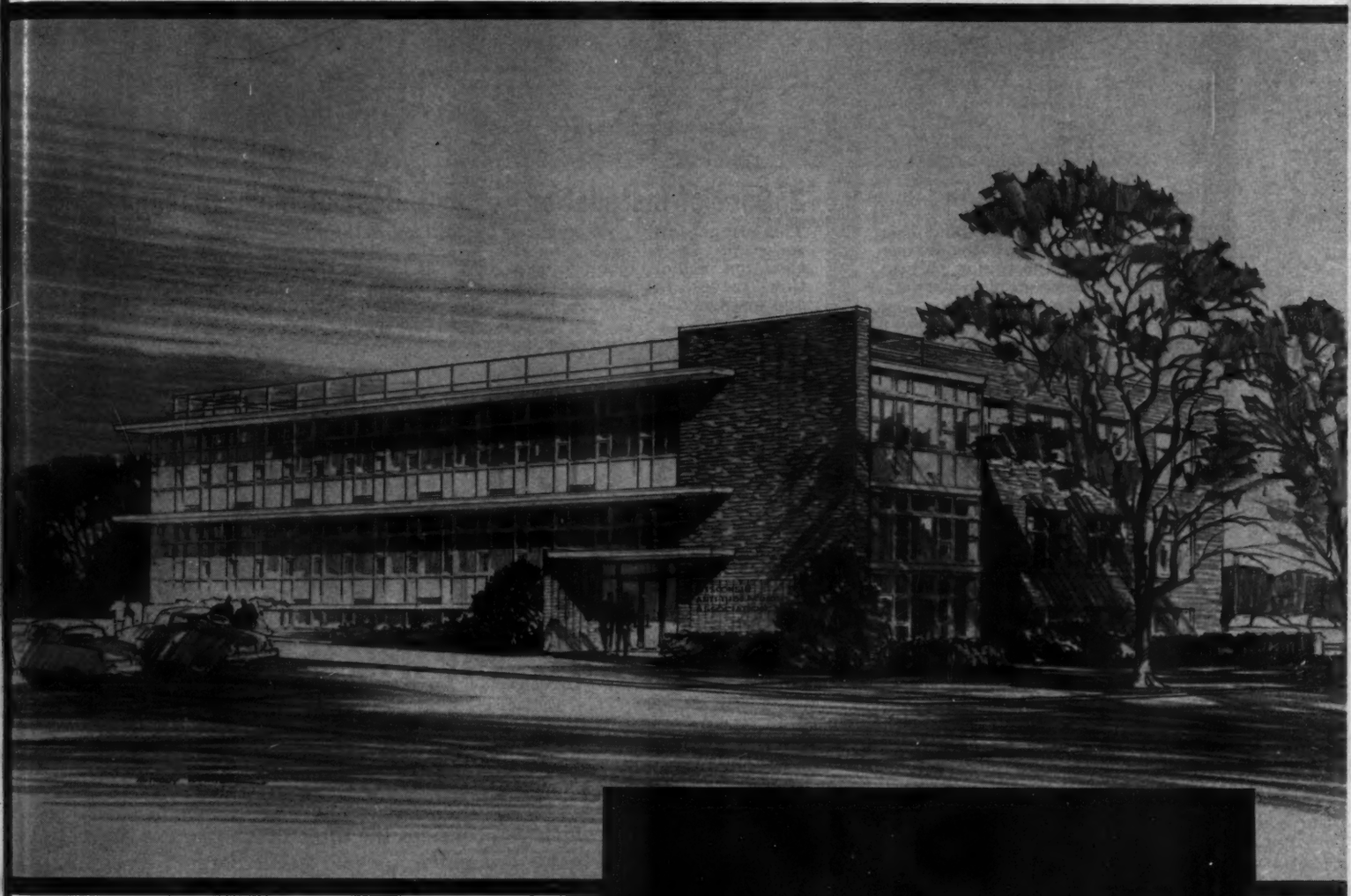

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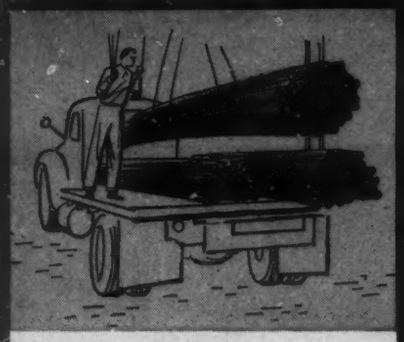
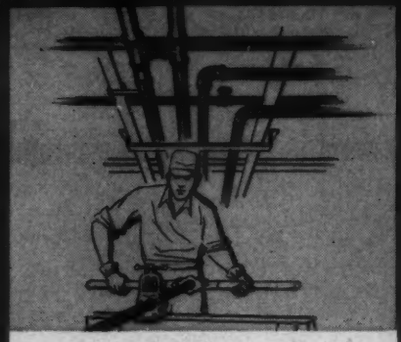


1. Cost of Pipe

The important thing about this cost is that it represents only *one small part* of the piping picture and should not establish the only pipe comparison guide.



2. Cost of Installation

This cost generally represents the *major part of the piping investment* and includes labor, fabrication, valves, fittings, covering, and overhead.

3. Cost of Maintenance

This is the money paid to keep the piping system in operation as long as the need for it exists. The amount spent depends largely on the quality of pipe used.

3 IMPORTANT COSTS THAT SHOW WHY WROUGHT IRON PIPE PROVIDES TRUE PIPING ECONOMY

This breakdown of piping system costs underscores the reasons why wrought iron pipe users enjoy maximum piping economy even though they pay more, *initially*. These users know that they buy an *installed piping system*, not just the pipe. And because the greatest cost of this installed piping system is in labor, valves, fittings, fabrication, covering, and overhead, the difference between the cost of the wrought iron installation and what a low-first-cost pipe installation would have been, shrinks to an insignificant amount in the cost of the *total piping contract*.

But still more important to the plans and pocketbooks of wrought iron pipe users is the Cost of Maintenance. One user put it this way. "A wrought iron installation is like having money in the bank." He was simply expressing wrought iron's longer service in terms of money saved in repairs, replacement, and maintenance. There's no doubt about it . . . when you consider the three costs, you can buy the best—wrought iron—and get a bargain at the same time.

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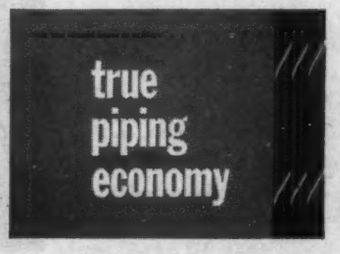

Write for Booklet

The booklet, *True Piping Economy*, gives detailed information on the cost facts presented here, plus many others. You will find it a valuable guide in placing pipe selection emphasis where it will profit you most.

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ARCHITECTURAL RECORD

July 1955 Vol. 118 No. 1

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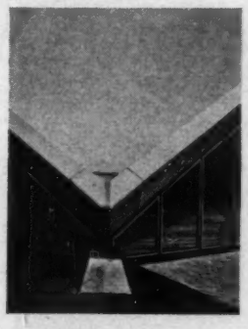

COVER: M. I. T. Auditorium, Cambridge, Mass.; Eero Saarinen, Architect; Robert D. Harvey, Photographer

M. I. T. Auditorium

Discussion about Eero Saarinen's bold design for the Kresge Auditorium is one of the obvious reasons for building it — it is there to be tested, criticized, debated, as well as used. The RECORD, withholding its own pearls of wisdom, makes so bold as to turn the task over to one who might be called an expert layman — a layman in architecture, a well known expert in activities that take place in our better auditoriums. A professional criticism is appended for good measure, by an English architect, an M. I. T. graduate, who also uses words to good effect.

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Birth of a Parti

An architect is happiest when he gets a commission with a pioneering program attached to it — in this case a new kind of jail, with courthouse, and no ancient concepts mixed in. This is a visual story of how such a program finally developed into a building design.

Brazos County Courthouse & Jail, Bryan, Texas; Caudill, Rowlett, Scott & Associates, Architects & Engineers 139

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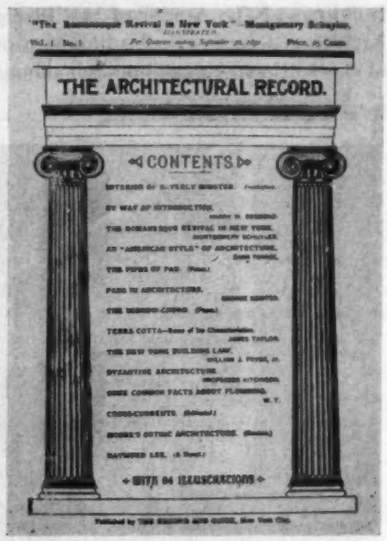
THE RECORD REPORTS

PERSPECTIVES

THE ROARING TRAFFIC'S BOOM, Lewis Mumford's recent series in *The New Yorker*, amounts to an impassioned plea for planned decentralization, as the "hopeful alternative" to "the present system of planning and building 'more and more of worse and worse.'" Such planning is not an idle dream, says Mr. Mumford, but "it will require an ability to face realities, a sense of public responsibility, and a boldness of imagination that have so far been absent among those who have exercised authority." For the complete series — "The Skyline" department of *The New Yorker*, March 19, April 12, April 16 and June 11.

PALACES AND PROGRESS: every century must have its monument, it seems — for the eighteenth century there was Versailles, for the nineteenth there was the Crystal Palace, and now if New York's irrepressible William Zeckendorf has his way, for the twentieth there will be an architectural ode to commerce in the form of the world's biggest and costliest building to house an international merchandise mart and permanent world's fair on the present site of Pennsylvania Station (Stanford White's ode to an earlier concept of progress). An agreement with the Pennsylvania Railroad signed last month gives Mr. Z's Webb & Knapp a $30 million one-year option for the purchase of "air rights" for building above ground level in the area bounded by Seventh and Eighth avenues and 31st and 32nd streets. The Pennsy would spend some $13 million to reconstruct Pennsylvania Station below ground; Mr. Z would spend an estimated $100 million to erect "The Palace of Progress" above it. As currently projected, the building would contain 154 million cu ft (for comparative cubages of the world's largest buildings, see below). The architectural concept being developed by Lester C. Tichy, architect, and the Webb & Knapp Architectural Division, I. M. Pei, director, is in its very earliest stages; simply stated, it would put a nine-acre building on the nine-acre site, with the "permanent world's fair" occupying the lowest block of floors, the "international merchandise mart" the next several floors and buyers' offices the top block. Offstreet loading facilities will be provided, but not off-street parking: traffic and parking, says Mr. Z, are the city's problems. It is estimated that the building will require a workforce of 50,000 and that at minimum it will average 30,000 visitors a day. It will be privately owned and operated by Palace of Progress Inc., a wholly-owned subsidiary of Webb & Knapp Inc., with impresario Billy Rose as president and general manager (he also gave the project its name). As Mr. Z sees it, "only two question marks hang over this project now" — obtaining the necessary building code adjustments; and the problem of construction itself. How do you span perhaps 400 ft and support an enclosure of 154 million cu ft above ground level when your foundations must pierce the world's busiest railroad terminal to be rooted between tracks that carry 689 trains a day — with no interruption in the railroad's operations? In effect, this is the structural problem that confronts Paul Weidlinger as consulting engineer to the designers. The target date for starting construction is June 1, 1956.

THE RECORD OF A REVOLUTION is in the pages of any serious journal which has been publishing without interruption, as this one has, since 1891; no matter what the field. The architectural record of the past 64 years is almost a kaleidoscope of revolution


"The Romanesque Revival in New York" — Montgomery Schuyler.

THE ARCHITECTURAL RECORD.

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Contents page of the Record's first issue — September 30, 1891

(and counter-revolution) in big and little things. The pages of the RECORD over the years give architectural history the special perspective of the contemporary account; the revolutions and the counter-revolutions are there, but so are a great many matters with which the architects of their day often seemed a good deal more concerned, and so are a great many with which architects today are still not enough concerned. For an occasional backward look — informative or amusing or nostalgic or even humbling — a new department, "Reviewing the Record," will provide glimpses of the architectural past as the RECORD saw it. The recollections of the late George Howe, on page 20, are a first installment.

23 SCHOOLS APPLAUDED BY SCHOOLMEN:

The architectural exhibitions at the three regional conventions held this year by the American Association of School Administrators produced eleven top award winners — the Award of Merit recipients shown on these pages — and 12 Honorable Mentions (shown on pages 292–298). It was the seventh year of architectural exhibitions for A.A.S.A., the second of its award program. Members of the Committee on School Buildings of the American Institute of Architects joined school administrators of the National Council on Schoolhouse Construction of A.A.S.A. on the award juries.

Judgments in the three competitions, which were open to all registered architects in the U. S., were guided by two fundamental criteria — excellence of the projects as works of architecture and excellence in furthering the local educational program. In the individual school plants juries looked for these features, all of them regarded as of equal importance: adequacy for educational function; grouping of instructional areas; accessibility of facilities; flexibility; community use; environmental controls; adequacy of light, air, sound; safety; expansibility.

At the only one of the three conventions at which there was a formal "jury report," the Cleveland jury expressed itself as "favorably impressed by some good examples of openness of plan and of continued efforts to solve the daylighting problem." On the other hand, the jury noted that in general, secondary school plans "reveal the need for much basic thinking about the nature of the educational programs to be housed";

AWARDS OF MERIT

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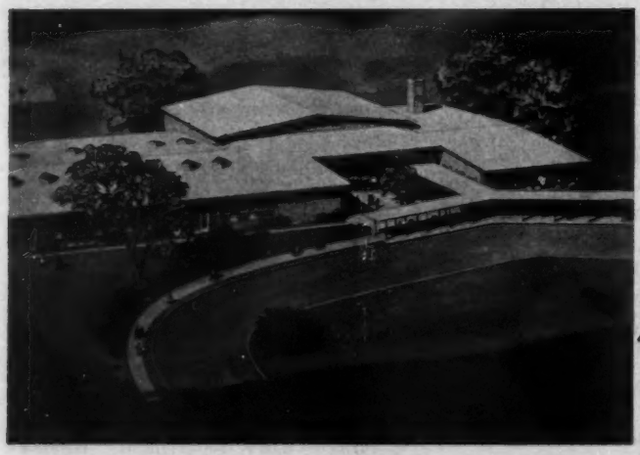

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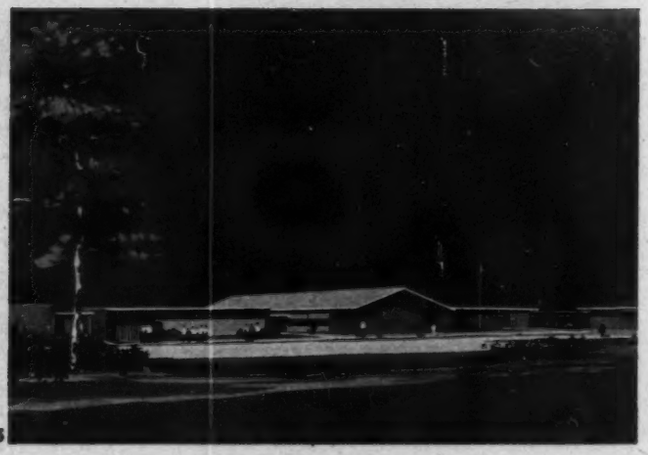

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THE WINNERS IN THREE REGIONAL COMPETITIONS

and "took exception to these features in some exhibits: (1) Play areas, inside and outside the building, located so close to classrooms as to create a noise problem; (2) Stages not accessible to performers without passing through audience spaces; (3) Poor designing for visual comfort and efficiency; (4) Inclusion of statements having the appearance of advertising contrary to the spirit, if not the letter, of the rules of ethics of the American Institute of Architects, and of laudatory statements that were not substantiated."

The jury also suggested that site planning should be given more attention in future exhibits.

The award-winning panels were shown in a special exhibition, "Contemporary Architecture for Schools," in the gallery of the A.I.A. national headquarters in Washington April 25–May 13. They will have a great many future showings in communities throughout the country via a filmstrip prepared for distribution by A.A.S.A.

Selection of the award winners was made by six-man juries each composed of three members of the A.A.S.A.'s National Council on Schoolhouse Construction and three members of the American Institute of Architects. Membership of the three juries was as follows:

A.A.S.A.–A.I.A. Juries

ST. LOUIS — (for the National Council on Schoolhouse Construction) N. L. George, assistant superintendent of schools, Oklahoma City; George Engelhart, of the Missouri State Department of Education; and Earl A. Stoneman, of the University of Nebraska;

(Continued on page 292)

3

St. Louis — *1. Tucker Maxon Oral School, Portland, Ore.; Belluschi and Skidmore, Owings & Merrill. 2. Jane Phillips Elementary School, Bartlesville, Okla.; Caudill, Rowlett, Scott & Associates; 3. Bristol Primary School, Webster Groves, Mo.; Hellmuth, Yamasaki & Leinweber.*
Cleveland — *4. Tallmadge Elementary School, Lancaster, Ohio; Joseph Baker & Associates. 5. Dickinson Street School, Northport, N. Y.; Ketchum, Giná & Sharp. 6. Clover Drive Community School, Great Neck, L. I., N. Y.; Perkins & Will. 7. Birmingham Junior High School, Birmingham, Mich.; Eberle M. Smith & Associates.*
Denver — *8. Florence Black Elementary School, Mesquite, Tex.; Caudill, Rowlett, Scott & Associates. 9. Edna Elementary School, Edna, Tex.; Caudill, Rowlett, Scott & Associates. 10. Harvard Public School, Harvard, Neb.; Clark & Enersen. 11. Farmington High School, Farmington, N. Mex.; Max Flatow-Jason Moore.*

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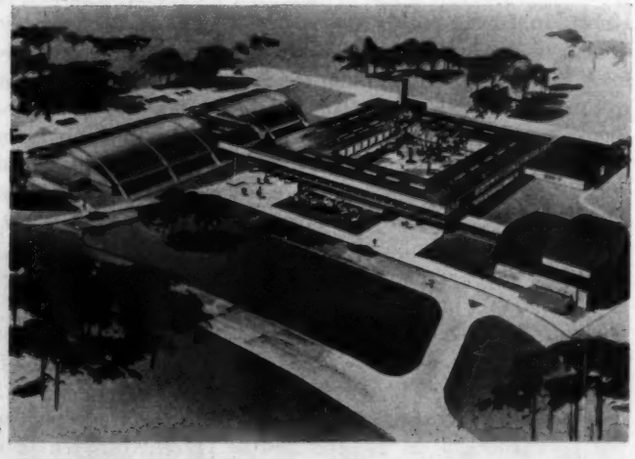

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11

Most States Would Like to Know:

WHAT "DECLINE" IN SCHOOL NEEDS?

Chief State School Officers replying to a RECORD query on the need for school building facilities testified three to one that there has been no reduction in the estimates of classrooms needed in their states to erase current backlogs and to keep up with estimated enrollment increases and replacement requirements over the next five years. One fourth of those replying said their needs have, in fact, increased. Of the fourth who did report at least a slight decrease, all denied any lowering of educational standards was implied; most reported legislative action to raise local bonding limits had helped spark local school programs — some, apparently, spurred on by *fear* of Federal aid.

104,000 Classrooms a Year

The RECORD's query was suggested by the confusion which arose from testimony of Secretary of Health, Education and Welfare Oveta Culp Hobby before the House Committee on Education and Labor that the prospective classroom deficit by the academic year 1959–60 would be 176,000 classrooms rather than, as previously estimated, 407,000. The lower deficit figure is based on what Mrs. Hobby in her testimony described as "the new State figures of estimated need" and the assumption that the current construction level of 60,000 classrooms a year will be maintained over the next five years. To put it another way, Mrs. Hobby was saying that 476,000 classrooms are needed by 1959–60, and that 300,000 may be built. A construction rate of 104,000 classrooms a year for each of the next four years would be required to erase the deficit.

Needs or Plans?

But Mrs. Hobby's statement has been widely challenged as misleading; the argument is that she was "comparing the incomparable." She was, in fact, comparing estimates by the states in Phase I and Phase II of the School Facilities Survey begun in 1951; and while Phase I required participating states to estimate their classroom *needs* for the year beginning September 1952, the Phase II figures are simply planned *program* — not what the States think they ought to do ideally to meet their requirements, but what they believe they *can* do.

Looking at need rather than program, the U. S. Office of Education has estimated 50,000 classrooms a year are needed to absorb the expected increases in school enrollment (some 1.5 million a year), 20,000 a year for replacements (obsolescence, calamity, population shifts); the present deficit is estimated at 300,000, and to eliminate this by 1959–60 would require another 50,000 classrooms a year. This approach produces a total of 120,000 a year, or double the present rate of construction.

Most of the shortage is concentrated within a few states, according to recent testimony of Commissioner Samuel Brownell before the House Education and Labor Committee. On the basis of data from 34 states, more than half the shortage reported is found in eight states.

Classrooms to accommodate current and expected enrollment increases appear to be the greatest overall need; about 60 per cent of the overall shortage is of this type. The other 40 per cent is for replacement of unsafe or otherwise unsatisfactory school buildings, or abandonment of existing schools as part of a school consolidation program.

Not surprisingly, the shortages are concentrated, in most states, within a few districts — those which have had large and rapid growth. As examples, Dr. Brownell has noted: "California, with a 74 per cent increase in school age population between 1940 and 1952, had 88 per cent of the classroom need concentrated in its metropolitan areas. Similarly, in Florida, with a school age population increase of 50 per cent, nine counties account for 64 per cent of the classroom need. In Oklahoma, where school age population dropped 14 per cent between 1940 and 1952, over one half of the classroom shortage is in two counties — counties which have experienced a heavy growth in the same period. In Maryland, about three fourths of the classroom needs are in Baltimore and the four counties adjacent to Baltimore and the District of Columbia." In general the picture reflects population shifts from central to western states, from country to city, and from the cities themselves to "fringe" areas.

STATE SCHOOL OFFICERS SAY:

(Excerpts from some of the responses to the RECORD'S telegraphic inquiry to chief state school officers in all the 48 states)

Alabama—"Alabama has no decline in school needs."—A. R. Meadows, State Superintendent of Education.

Arizona—"Question accuracy of figures showing decline from 407,000 to 176,000."—C. L. Harkins, Superintendent of Public Instruction.

Arkansas—"Decline in estimated deficit classrooms in Arkansas is due to the reëvaluation of present structures to be rehabilitated. . . . No educational standards lowered."—Joe Kilbury, School Building Consultant, State Department of Education.

California—"California has made no downward revision."—Roy E. Simpson, Superintendent of Public Instruction.

Colorado—"Estimated deficit in needed classrooms reported in Phase Two of the School Facilities Survey for Colorado has not decreased."—Burtis E. Taylor, Assistant Commissioner, State Department of Education.

Florida—"If present enrollment growth rate continues, Florida's estimate of classroom needs . . . will prove too conservative. Most current construction is being financed by debt financing. Many counties have reached their constitutional limitation on bonds. Therefore the current rate of construction cannot be maintained in Florida under the existing methods of financing."—Thomas D. Bailey, Superintendent of Public Instruction.

Georgia—"No reduction in 1960 classroom deficit for Georgia. Estimate is low, since based on 1951–1952 average daily attendance."—M. D. Collins, State Superintendent of Schools. "Heavy enrollment increase postponing abandonment of obsolescent facilities in some areas."—Allen C. Smith, Director of Division of Staff Services, State Department of Education.

Indiana—"As far as Indiana is concerned, there is a greater classroom deficit now than when the first report was made to the U. S. Office of Education in December of 1952. This stands to reason since in recent years we have not been building enough classrooms to meet our year-to-year needs. . . . Since there is a reduction deficit for the United States from 407,000 to 176,000, it seems it would only be possible if many states revised their original estimates downward. As stated above, estimates for the State of Indiana increased. It could be that other states have scaled their needs downward by changing the standards used in determining classroom deficits. . . . If this is not the answer then it may be that other states have done a lot more about their classroom shortages than Indiana has done in the past three years but it is hard to believe that they have done enough to reduce the anticipated shortage by 1960 from 407,000 to 176,000."—Wilbur Young, State Superintendent of Public Instruction.

Iowa—"National report showing decline in estimated 1960 classroom deficit not applicable in Iowa."—J. C. Wright, Superintendent of Public Instruction.

(Continued on page 322)

FOR SUMMER COMFORT,

the U. S. National Bureau of Standards rates multiple layers of aluminum FIRST

among all insulations it tested, as reported in its booklet, "Effect of Ceiling Insulation upon Summer Comfort," BMS52. (You can get it at our expense.)

To be comfortable in summer you must ward off unwanted heat rays or radiation. Most heat flow thru a *roof space* in summer is by radiation. There is no convection down, and little conduction thru low density air.

Temperatures can reach over 140° F. in some attics. With an absorptivity for heat rays of only 3%, reflectivity 97%, and emissivity 3%, multiple accordion aluminum is an effective shield against summer heat. The slight mass of its components, air being preponderant, makes it very low in heat storage.

COST OF AIR-CONDITIONING REDUCED

This shield against radiant heat lifts part of the load from house-cooling equipment, reducing installation and up-keep costs. But the building, which is *not* artificially cooled, needs this shield even more!

Multiple accordion aluminum is also markedly effective against radiation through a *wall space.*

Air of higher outside temperatures will support more vapor than the cooler air inside a building. Often vapor flows from the outside to the inside of the house, obedient to the law of physics that vapor travels from areas of greater to less density.

Multiple accordion aluminum has long, continuous metallic sheets on *both* sides almost completely impervious to water vapor. Infiltration under the flat, stapled flanges is slight. The scientific construction of multiple layers of aluminum, fiber and air spaces, minimizes condensation formation on or within this type of insulation. Timber rot, crumbling plaster, peeling paint, etc. are minimized.

COST OF EDGE-TO-EDGE INFRA
Multiple Aluminum Insulation installed in new construction between wood joists, material and labor
Type 6-PS about 10¢ sq. ft.
Type 4-PS about 8¢ sq. ft.

CAUTION: *We do not recommend that vapor barriers be placed on both sides of all insulations.*

IN WINTER, NEED FOR INFRA EVEN GREATER

The low conductivity, the slight heat ray absorptivity and emissivity of multiple accordion aluminum, and the retarding of inner and outer convection by the multiple layers of metal and fiber, amazingly effective in summer, assume paramount importance in winter when this 3-fold bar to outward heat flow cuts fuel bills and increases comfort.

To obtain MAXIMUM, **uniform-depth** protection against heat loss and condensation formation, it is necessary to use the new **edge-to-edge** multiple aluminum*, **each** sheet of which stretches from joist to joist, and also all through the flanges for further vapor protection as well as permanent attachment of each sheet.

*Patent applied for.

INFRA INSULATION, INC.
525 Broadway, N. Y. C. Dept. R-7

☐ Send Bureau of Standards Booklet BMS52. ☐ Send Infra samples.

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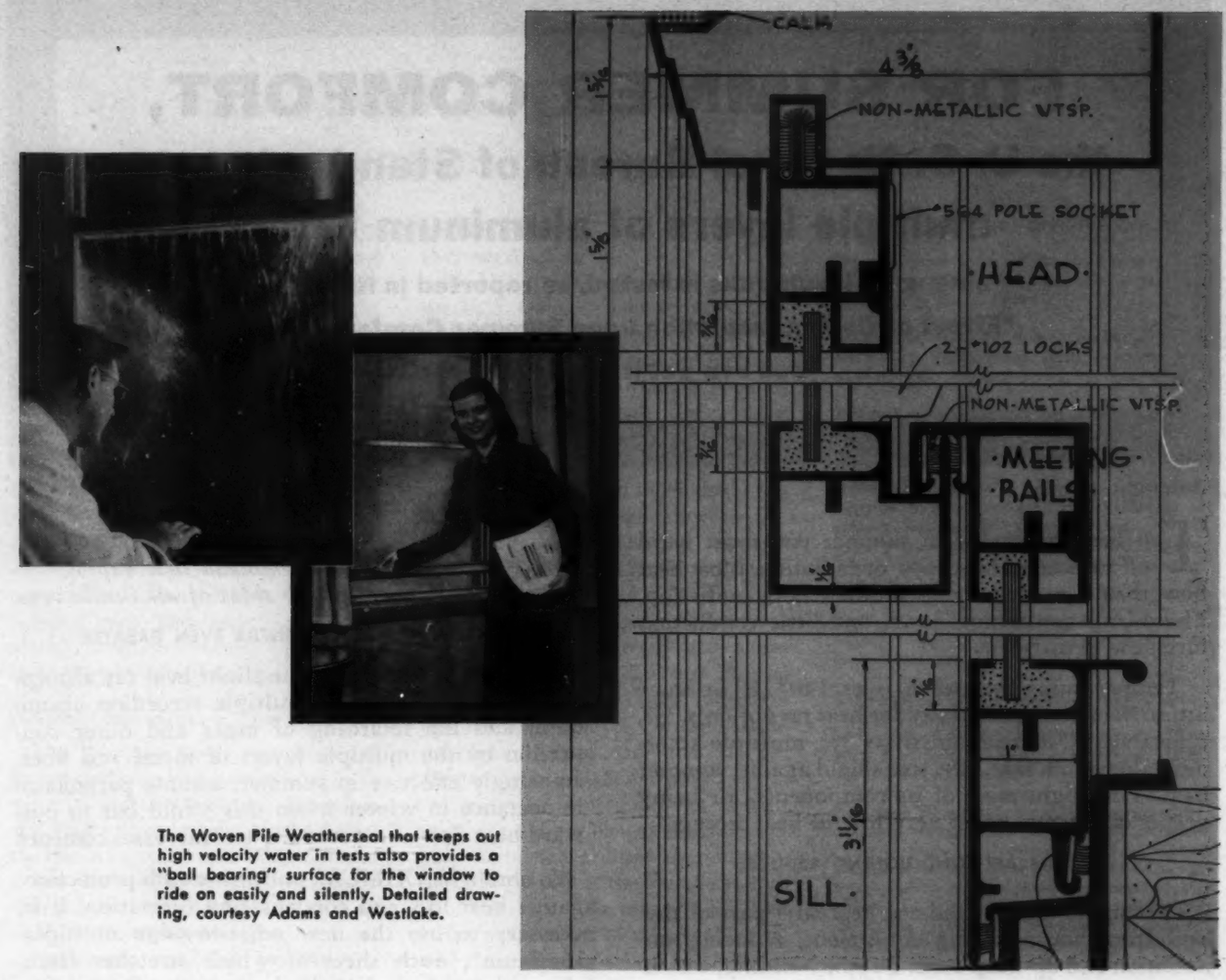


The Woven Pile Weatherseal that keeps out high velocity water in tests also provides a "ball bearing" surface for the window to ride on easily and silently. Detailed drawing, courtesy Adams and Westlake.

This hidden extra helps you two* ways

Prospects and customers rarely ask you about the weatherseal in the windows you use or suggest.

They may give weatherseal a thought when the first heavy, driving rain comes along. If it splashes its way through to stain walls and woodwork, or if winds whistle their way inside, then homeowners think lots about weatherseal—and usually less of the builder and architect.

Prevent weather tragedies to new homes: Specify and use windows and doors weathersealed positively by Schlegel Certified Woven Pile. Even hurricane rains can't force a way past this weatherwall. A hose under high pressure aimed squarely at a window protected with Schlegel can't drive its jet past.

* When you use Schlegel Woven Pile Weatherseal you protect yourself from losses caused by common weatherseal failures. That's one way the hidden extra helps you.
* The second way is saleswise. Make a point of showing prospects windows and doors protected with Schlegel Woven Pile. Show them how these "live," silent fibres let them slide windows easily, quietly without the sticking and scraping caused by some other weatherstripping materials.

You'll find most leading manufacturers of metal doors and windows using Schlegel Woven Pile Weatherseal. Windows with this superior protection cost no more than those with other types of weatherseal. For names of manufacturers using Schlegel Woven Pile, write:

Schlegel
MANUFACTURING COMPANY
Industrial Textiles Since 1885

Rochester 7, N. Y.
Oakville, Ont., Canada

"Complete engineering service against weather"

The State of Construction

This month the (by now) usual story of new all-time records — for the latest month reported by F. W. Dodge and for the year to date — has a footnote which may or may not be significant: though it hit a total of more than a billion dollars, and was the second biggest monthly total ever reported by Dodge for the category, residential construction in May registered the first month-to-month decline since November. Details on page 338.

Hospital Exhibits Invited

All registered architects are invited to submit hospital or other health facilities projects for the architectural exhibit at the 57th annual convention of the American Hospital Association September 19–22 at Atlantic City. Entry forms, due August 1, from: A. H. A., 18 E. Division St., Chicago.

In Caracas in September

The Ninth Pan American Congress of Architects will be held in Caracas September 18–26, not this month as previously announced (earlier it had been scheduled for March of this year). The "topic" for the Congress is "The Social Function of the Architect; Architect and Planification," and this will consist of the following items: main theme — "Integral Planification of the Living Spaces"; sub-theme — "Living, Education, Assistance and Recreation" (economical, social and technical aspects studied in relation to the "familiary group"); and a "free theme." Complete information on travel and living arrangements for the Congress is available from the Commercial and Convention Travel Department of the American Express Company, 65 Broadway, New York City.

The Photographers Win

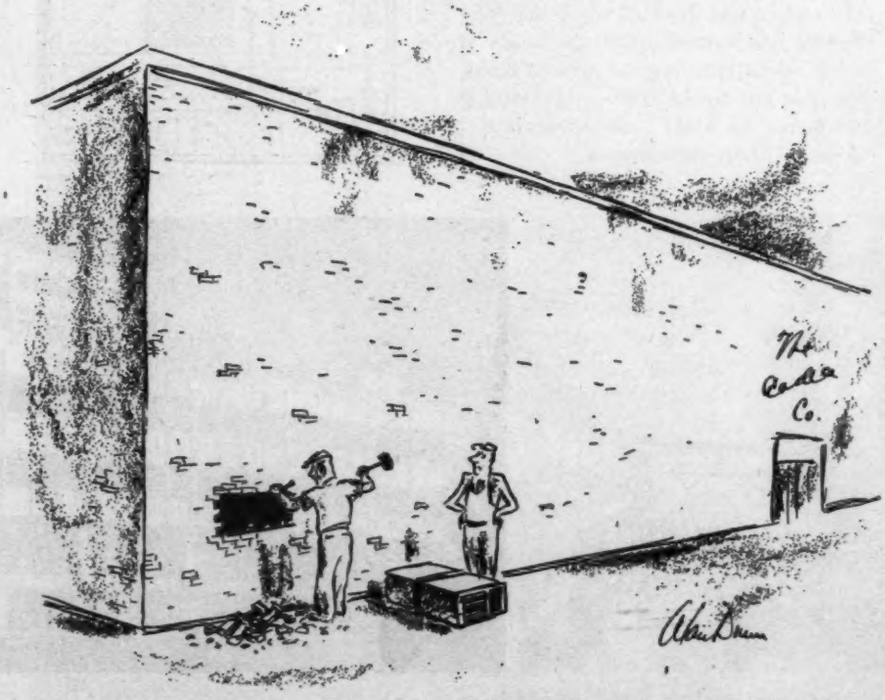
Three Awards of Merit in the first annual exhibition of architectural photography sponsored by the American Institute of Architects went to Morley Baer, Berkeley, Cal., for photograph (1) of U. S. Navy Postgraduate School of Engineering, Monterey, Cal. (Skidmore, Owings & Merrill, Architects; Walter A. Netsch Jr., Associate Architect), "best exterior"; Phil Fein of San Francisco for view (2) of Olivetti Showroom and Offices, San Francisco (Leo Lionni of Fortune Magazine, Designer), "best interior"; and Erwin G. Lang of Los Angeles for his photograph (3) of Clothing Factory, Mexico, D. F. (Felix Candella, Architect), "most imaginative photograph." The exhibition, consisting of 35 black and white photographs selected from submissions by professional architectural photographers, will tour the country under the auspices of the Traveling Exhibition Service of the Smithsonian Institution. Selections for both exhibition and awards were made by Beaumont Newhall, curator of George Eastman House, Rochester, New York.

(*Continued on page 16*)

Copyright by Morley Baer 1955 **1**

Phil Fein **2**

Erwin G. Lang **3**



— *Drawn for the* RECORD *by Alan Dunn*

THE RECORD REPORTS:

MEETINGS AND MISCELLANY

(*Continued from page 15*)

Honors

Sir Patrick Abercrombie of London, 1950 A.I.A. Gold Medalist, has been awarded the Gold Medal for 1955 of the British Town Planning Institute.

Edward D. Stone of New York was the 1955 recipient of the Medal of Honor of the New York Chapter of the American Institute of Architects. Mr. Stone, who received the award at the Chapter's 86th anniversary meeting, was cited as "distinguished designer of buildings and inspiring teacher."

Roy F. Larson, architect and president of the Philadelphia Art Commission, received the 1955 Philadelphia Art Alliance Medal of Achievement. Mr. Larson, a member of the Philadelphia firm of Harbeson, Hough, Livingston and Larson, was honored for his long crusade for restoration of the area around Independence Hall in Philadelphia which has culminated in the Independence Mall development now well under way.

Dr. D. B. Steinman, New York consulting engineer and bridge designer, has been awarded the International Grand Prize of Invention for his inventive and scientific contributions and achievements in the design and construction of bridges. Doctor Steinman, designer of such noted spans as New York's Henry Hudson Bridge, the Thousand Islands International Bridge and the $100 million Mackinac Bridge now under construction in Michigan, is the first recipient of the award, established by the Permanent Committee of the Grand Prix International de l'Invention, an organization founded in Paris in 1954 by representatives of national and international organizations of scientists and inventors.

First place winners in the Second Annual Award of Merit Contest sponsored by *Wood Working Digest* are the Architectural Woodwork Institute, Dependable Machine Company, West Coast Lumberman's Association, College of Forestry of the State of New York and Mississippi Products Inc. Honorable Mentions: The Borden Company, Elliott Bay Lumber Company, Hardwood Dimension Manufacturers' Association, Western Red Cedar Lumber Association, Michigan College of Mining and Technology, and Wood Office Furniture Institute. Awards were to be presented at the annual luncheon of the Forest Products Research Society June 21 at the Olympic Hotel in Seattle.

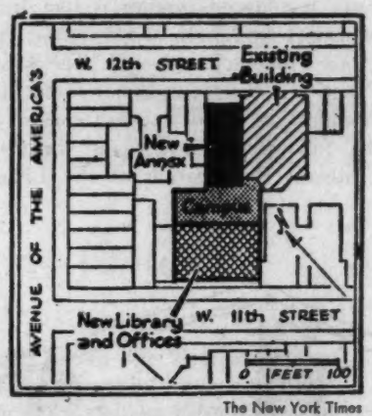
Education Notes

Emil C. Fischer has been named to succeed Paul Weigel as head of the Department of Architecture and Allied Arts of Kansas State College, Manhattan, Kan., effective July 1. The new head of architecture has been professor of architecture in charge of senior design courses at Ohio State University. Professor Weigel retires after 31 years as head of the department; he is being honored by establishment of the Paul Weigel Foundation to provide scholarships to worthy students interested in careers in architecture. The Foundation will be administered by the Kansas State Endowment Foundation.

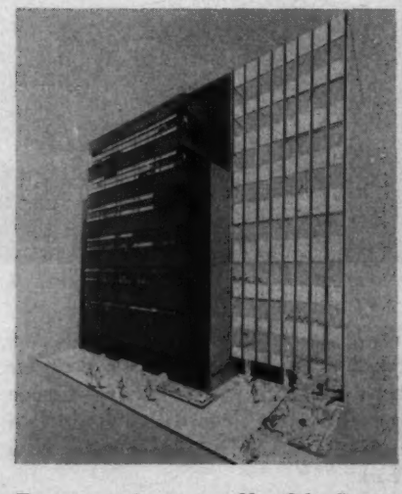
Harlan E. McClure, professor of architecture at the University of Minnesota since 1952, has been appointed professor and head of the department of architecture at Clemson College, effective July 1.

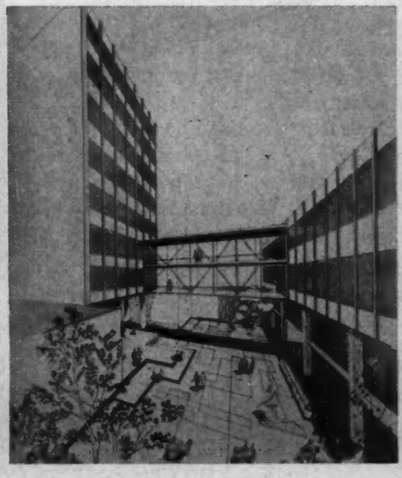
IN THE HEART OF THE CITY, ROOM FOR A CAMPUS

New York's famed experiment in adult education, the New School for Social Research, has announced plans for a $2.5 million expansion program to include an eight-story addition to the present building, a new four-story library and office building, and a miniature campus in the form of a central court planted with trees and shrubbery. The annex, which will get under way this fall, will be set back from the street to make room for a small garden at the entrance. Funds are still needed for the library. New School President Hans Simons notes that the new program will provide "the first real home for the education of adults"; architects Mayer & Whittlesey are asked to embody in their plans the best of what the New School has learned about the needs of adult education since the present building was put up in 1930 — "a building to house an ideal," as its architect, Joseph Urban, described it.



The New York Times

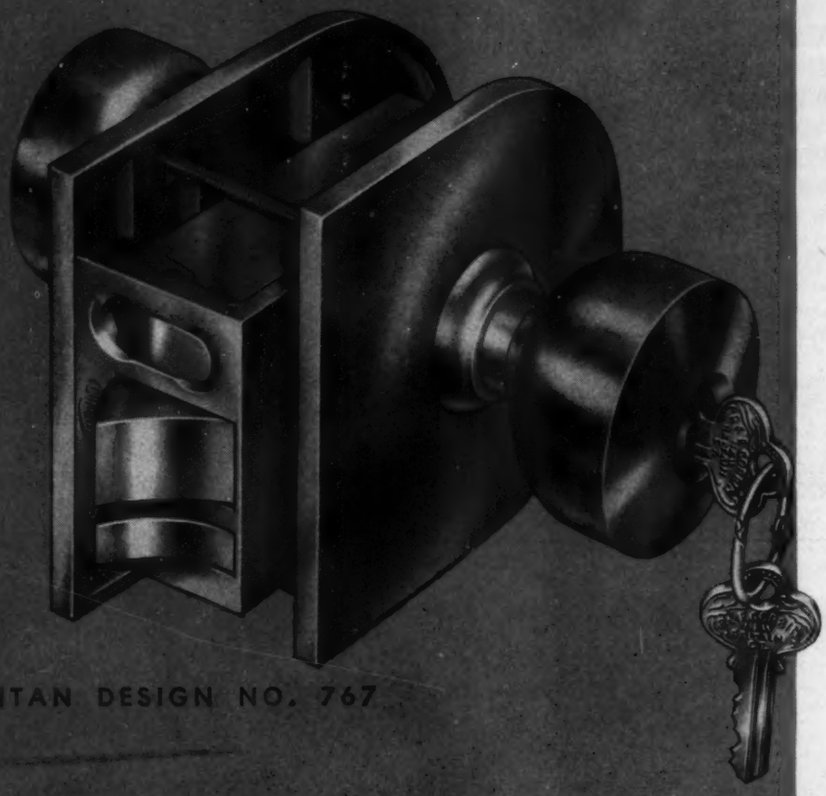




Expansion scheme gives New School's existing building an extension (left), a real "campus" (center) and a new library-office building (right)

(*More news on page 20*)

SIMPLICITY



TITAN DESIGN NO. 767

IN DESIGN

The Corbin TITAN No. 767 Design shown . . . is a striking example of the *balanced* styling of all Corbin heavy duty Unit Locks. Other simple, yet distinctive, Corbin designs offer you equally beautiful lock treatment for every architectural technique. Designs are available in cast brass, bronze, or aluminum metals in all popular finishes.

IN APPLICATION

Corbin Unit Locks are factory assembled for quick, easy, *one-piece* installation. No mortising is required. Unique construction makes the Unit Lock less sensitive to misapplication than any other type of lock. Each of the 20 functions available fits into a uniform cut-out in the door. Reversible for right or left-hand doors. Approved by Underwriters' Laboratories for all Class B label doors.

IN PERFORMANCE

Thousands of installations in every type building have proved that Corbin Unit Locks have no equal for strength, functional smoothness, and trouble-free operation. All internal parts are of long-wearing nonferrous metal and zinc-plated dichromated steel. Lock frames are ruggedly made of one-piece extruded brass. Famous Corbin master ring cylinder provides maximum protection . . . unusually flexible master-keying system offers utmost lock convenience.

WHY NOT SEE for yourself why all these Corbin Unit Lock advantages make it your wisest possible choice for heavy duty service. Ask your Corbin dealer for full details. Ask him, too, about Corbin's complete line of Builders' Hardware — a line that through honest service and honest value has become *the world's most widely used builders' hardware.*

CORBIN

HEAVY DUTY UNIT LOCKS

TIME-TESTED IN MANY OF AMERICA'S LARGEST COMMERCIAL BUILDINGS . . .

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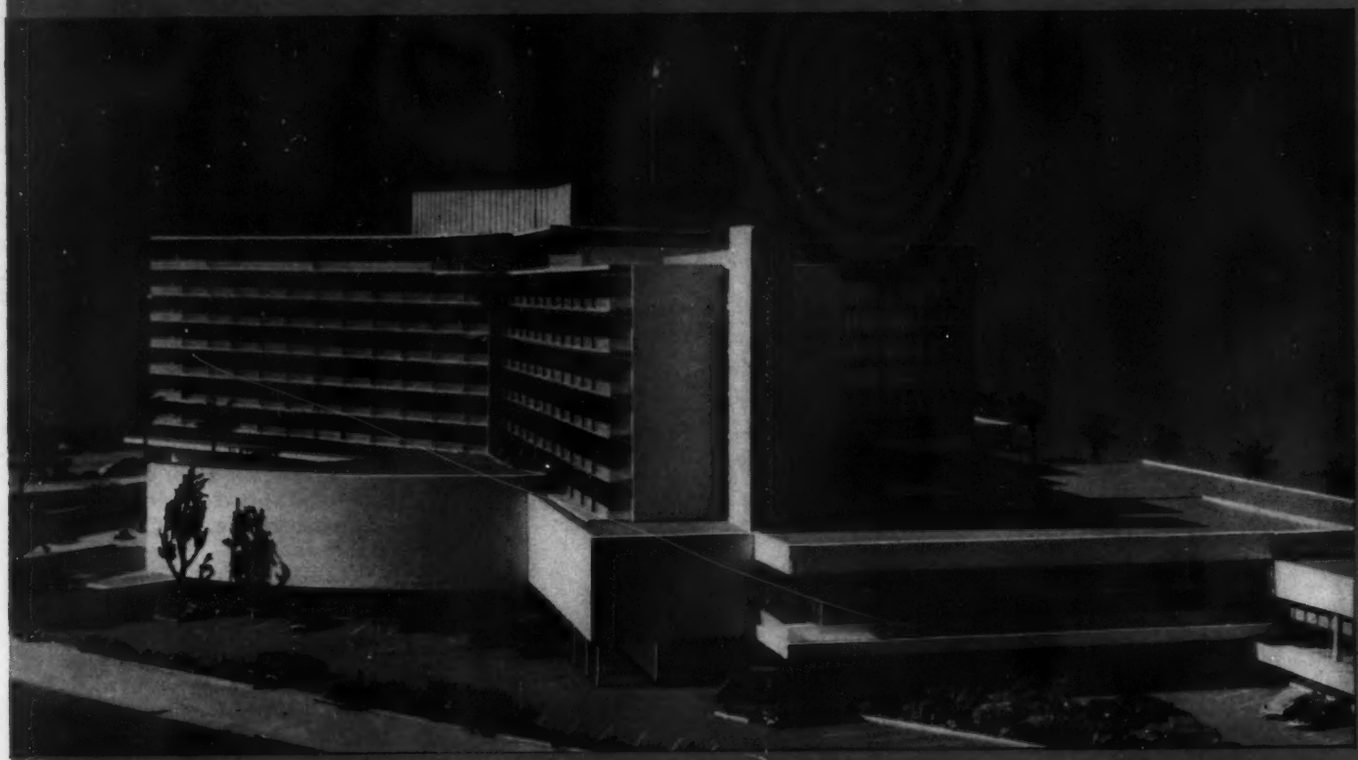
...AT THE BEAUTIFUL BEVERLY HILTON



...AT THESE AND OTHER OUTSTANDING BUILDINGS

AMERICAN HEREFORD ASSOCIATION BUILDING
Kansas City, Mo.
Architect:
J. W. RADOTINSKY
General Contractor:
SWENSON CONSTRUCTION CO.
Corbin Locks and other hardware by:
RICHARDS & CONOVER
Kansas City, Missouri

HARTFORD PUBLIC LIBRARY
Hartford, Conn.
Architect:
SCHUTZ AND GOODWIN
General Contractor:
WADHAMS & MAY COMPANY
Corbin Locks and other hardware by:
BIDWELL HARDWARE COMPANY
Hartford, Conn.

TULSA COUNTY COURT HOUSE
Tulsa, Oklahoma
Architect:
BLACK AND WEST
General Contractor:
MANHATTAN CONSTRUCTION CO.
Corbin Locks and other hardware by:
BUILDERS HARDWARE & SUPPLY CO.
Tulsa, Oklahoma

HARDWARE

CORBIN

HEAVY DUTY UNIT LOCKS

TITAN DESIGN NO. 767

THE BEVERLY HILTON
Beverly Hills, California
Architect:
WELTON BECKET, F.A.I.A., AND ASSOCIATES, ARCHITECTS, AND ENGINEERS
General Contractor:
DEL E. WEBB CONSTRUCTION CO.
Corbin Locks and other hardware by:
DANIEL C. HAY
Beverly Hills, California

THE WORLD OVER

UNIVERSITY OF MISSISSIPPI MEDICAL SCHOOL & TEACHING HOSPITAL
Jackson, Miss.
Architects: M.N.O. ASSOCIATED ARCHITECTS
General Contractor: FARNSWORTH & CHAMBERS
Corbin Locks and other hardware by:
ADDKISON HARDWARE CO., INC.
Jackson, Miss.

MOHAWK SCHOOL
Columbus, Ohio
Architect: BENHAM, RICHARDS & ARMSTRONG
Associate: EDWARD KRAMER
(architect for the Columbus Board of Education)
General Contractor:
DAWSON-EVANS CONSTRUCTION CO.
Corbin Locks and other hardware by:
COLUMBUS HARDWARE SUPPLIES, INC.
Columbus, Ohio

STATE OFFICE BUILDING
Tallahassee, Fla.
Architect: ERNEST J. STIDOLPH, A.I.A.
General Contractor: JACK CULPEPPER
Corbin Locks and other hardware by:
DAN CARTER CO.
Tallahassee, Fla.

CHILDREN'S HOSPITAL
San Diego, California
Architect: FRANK L. HOPE & ASSOCIATES
Contractor: M. H. GOLDEN CONSTRUCTION CO.
Corbin Locks and other hardware by:
GOULD HDWE. & MACHINERY CO.
San Diego, Calif.

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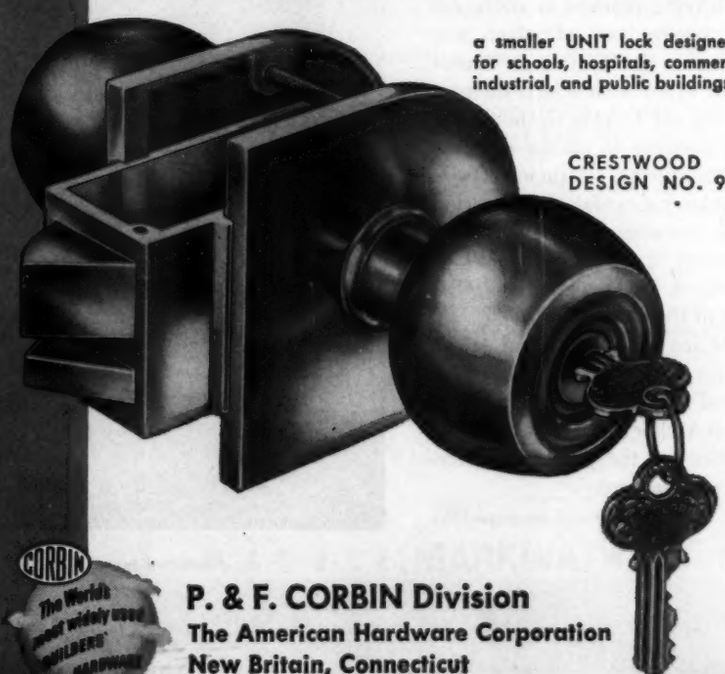
900 SERIES UNIT LOCKS

a smaller UNIT lock designed for schools, hospitals, commercial, industrial, and public buildings

CRESTWOOD DESIGN NO. 905



P. & F. CORBIN Division
The American Hardware Corporation
New Britain, Connecticut

GEORGE HOWE, ARCHITECT: 1886–1955

Any retrospective look at George Howe's accomplishments must recall, as the RECORD's pages do, not only his long and diversified career but the dramatic conversion which made him one of the most effective and distinguished pioneers in the battle for modern architecture in America. Having started his professional life in the ranks of eclecticism, he broke with it and took his own gifts and the enthusiasm of a convert into his roles of architect, government planner and teacher.

Mr. Howe, who died April 16 in Philadelphia at the age of 68, received his education at Groton, Harvard (Class of 1908) and l'Ecole des Beaux Arts (1908 to 1913).

As an Architect

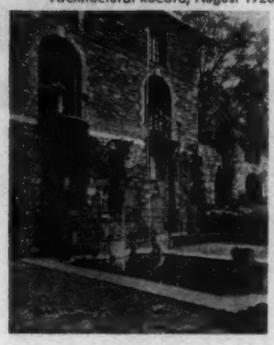
His work first appeared in the RECORD shortly after his return from Paris, when the magazine published the interiors of his own house in Philadelphia (November 1914), designed during his brief association with Furness, Evans & Company.

In 1916 Howe became a partner in the Philadelphia firm of Mellor & Meigs. As Mellor, Meigs and Howe, the firm had a long and thriving practice as designers of country houses, one of which was once described in the RECORD as "a perfect English type, with a certain suggestion of the old French Gothic house adapted to conform to all our complex modern requirements." Although Howe himself was later scornful of this period of his work (he once dubbed it "Wall Street Pastoral"), the small houses of Mellor, Meigs & Howe were among the pleasantest of their kind.

It was during this period that Howe built his own house, sold in 1928 when he renounced traditionalism and eclecticism and left Mellor and Meigs to set up his own office for the practice of contemporary architecture.

(*Continued on page 300*)

Architectural Record, August 1920



Architectural Record, November 1932

Architectural Record, November

Left: Howe designed this Chestnut Hill house for himself when he was with Mellor, Meigs and Howe. Center: with Lescaze, he designed the steel and concrete Field house in New Hartford, Conn., in 1932. Right: the RECORD *first published Howe's work in 1914 when it showed his designs for the interior of his "temporary home"*

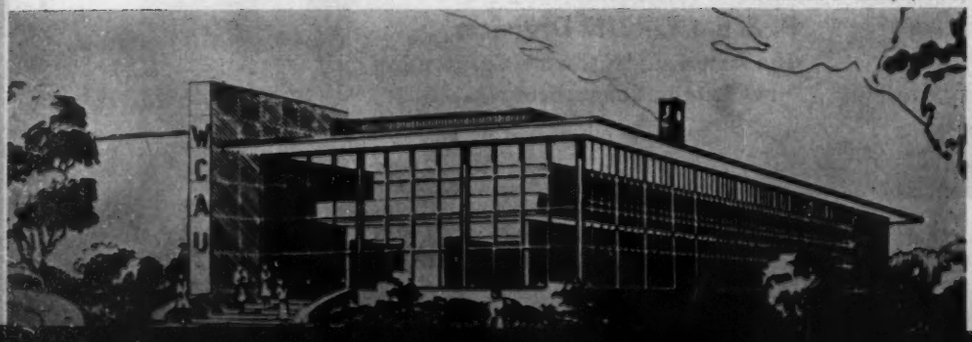
Architectural Record, April 1931

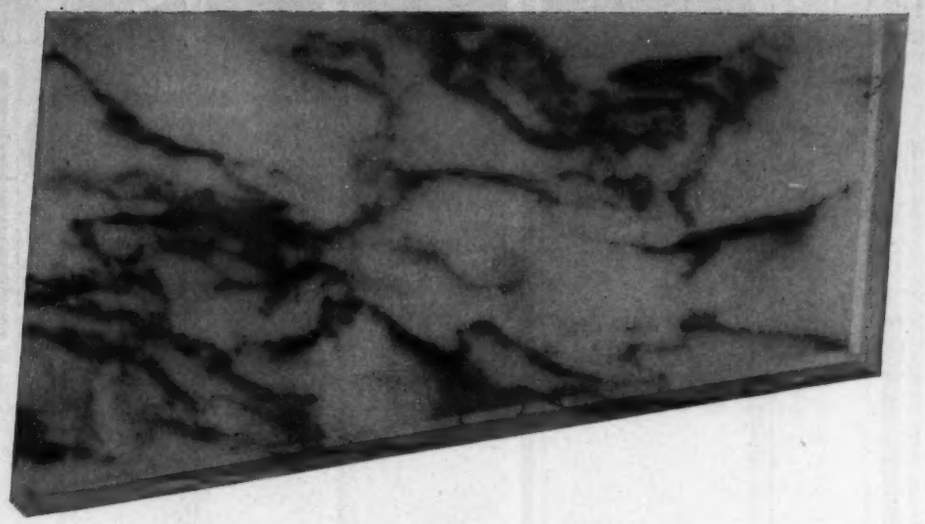
Architectural Record, October 1949

Howe and Lescaze's Philadelphia Savings Fund Society Building (rendering by Hugh Ferriss) was built after long battle to convince bank's directors that, as Howe put it, "we had designed the building in the interests of the bank and not of our personal reputations among the ivory tower boys"

Below: two of the buildings designed by Howe and Robert Montgomery Brown — at left, a radio and television center for station WCAU, Philadelphia, and at right, the newly completed plant for the Philadelphia Evening and Sunday Bulletin

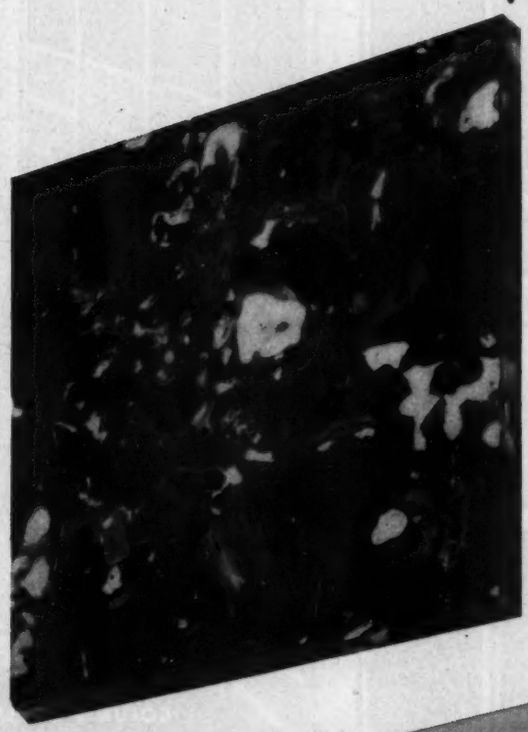
Architectural Record, April 1951

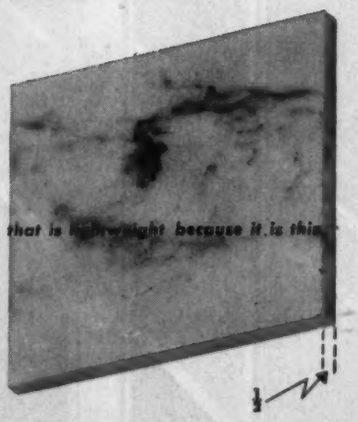




GENUINE MARKWA

marble WALL TILE





The only quarried marble that is lightweight because it is thin

At last, for the first time, magnificent marble, with all its lustrous beauty and vibrant color, is now available in lightweight, half-inch *thinness* for wall or floor covering.

Here are the facts:

MARKWA marble wall tile is a true quarried marble, produced exclusively by America's foremost marble producer and fabricator, the Vermont Marble Company.

MARKWA marble wall tile is half the thickness and half the weight of conventional marble slabs—1/2 inch thick, 7-1/2 lbs. per square foot. It is cut to three sizes: 8″ x 8″, 8″ x 12″, and 12″ x 12″. It is absolutely flat, uniform in size and thickness to a close tolerance.

Modular sizes (3/32″ less each dimension) are also available at no extra cost. It is set by tile layers in exactly the same manner as clay tile, either with mortar or by adhesion.

MARKWA marble wall tile costs as little as $2.85 per square foot set in the wall depending on variety of marble and type of installation. It is stocked in a wide variety and color range.

MARKWA marble wall tile is ideal for wall or floor, in bathroom, kitchen, living room or foyer, for countertops or fireplace facings, in residential or commercial buildings, for interior or exterior. It comes polished with cushion edges; matte finish available for floors.

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More information and complete specification data are available by writing the Vermont Marble Company, Proctor, Vermont, or any of its branch offices.

MARBLE MARKWA WALL TILE

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Alcoa Aluminum Anoclad*
Type 20 sheet, Alcoa No. 1
Pattern (Coarse Bark)
finished in Alcoa
Architectural Blue 3020.
WINDOW, MULLION
AND PANEL FRAMES
Extrusions of Alcoa Aluminum
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A leader in curtain wall design, fabrication and erection, Cupples Products Corporation adds the beauty of color to aluminum "skin" construction of a multistory building. The spandrel panels of Alcoa® Aluminum Sheet, fabricated by Cupples for the Henry C. Beck Building in Shreveport, La., are finished in Alcoa Architectural Blue 3020.

One of a range of Alcoa Architectural Colors now available, the new finish is not paint or enamel, but an integral part of the aluminum surface. It is the result of an electrochemical process developed by Alcoa after years of experimentation and testing.

In addition to the spandrels, Alcoa Aluminum has been chosen for the column covers running the height of the building and extrusions for all windows, mullions and panel frames.

For additional information about Alcoa Architectural Aluminum, call your local Alcoa sales office. You'll find the number listed under "Aluminum" in your classified directory. ALUMINUM COMPANY OF AMERICA, 1888-G Alcoa Building, Mellon Square, Pittsburgh 19, Penna.

Owner: Travis-Edward, Incorporated
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Architects: Neild-Somdal Associates
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a WASHINGTON *report by Ernest Mickel*

$20 BILLION A YEAR FOR 10 YEARS NEEDED TO MEET STATE-CITY PUBLIC WORKS BACKLOG, STUDY FINDS

A recent Bureau of Census survey showed 71,639 non-Federal public works projects costing an estimated $25.3 billion in various stages of planning by state and local governments. All of these could not be built quickly — only $7.6 billion was at or beyond the drawing board stage — but if they were to be constructed, the projects would constitute little better than one year's need on the basis of a new study recently completed by the Department of Commerce.

Projecting the basic need for these non-Federal public works over the next decade, the Commerce publication *Construction Review* found the current rate of construction of new highways, schools, hospitals, water and sewer facilities, and like state and local public works far below what it should be to catch up to known requirements. States and their communities would have to spend around $20 billion annually for each of the next 10 years to fill the estimated need; they now are spending $8.5 billion in terms of work put in place. That was the figure for the record-breaking year of 1954.

State-City Building Needs
1955–1964

Category	Estimated Cost (in billions)
Highways	$ 92.0
Schools (public & private)	31.0
Higher education	12.5
Hospitals (& institutions)	22.0
Water & Sewerage works	25.0
Other	23.0
Total	$205.5

Said *Construction Review:* "Expressed in terms of 1954 construction costs, the huge 1955–64 construction requirement is equivalent to nearly four times the amount of non-Federal public works construction put in place during the past 10 years, and one third more than total construction volume for these types in the past 35 years."

Severe community problems loom during the next decade if these deficiencies are not erased, the *Review* commented. Meanwhile, the backlog constitutes "a strong stabilizing force for the economy" during the 10 years ahead.

It was noted that the marriage boom in 1965–75, reflecting the baby boom of 37 million births in 1945–54, implies an even greater demand for housing and for new community facilities than is presently evident. Long-run stability dictates that extensive efforts should be made to overcome the deficiencies during the decade when new family formation will continue at comparatively moderate rates, said the *Review*.

The article treated category needs in some detail. Here are excerpts:

Schools — The Office of Education estimates that school building requirements will total $41.5 billion between September 1954 and September 1964. About $31 billion will be needed for increased capacity and replacement of elementary and secondary schools — including private and parochial classrooms. The remainder of $10.5 billion will be required for college and university construction. For the period 1954–59, project plans to meet public school needs have been reported by 35 states. A national need for school facilities costing approximately $16 billion is estimated from information furnished by states to the Office of Education. To this figure is added approximately $2.2 billion to cover private and parochial needs, assuming that these constitute 12 per cent of total elementary and secondary needs (based on the proportion of total enrollment). This gives a total of $18.2 billion to meet public and private needs by 1959.

For the period 1960–64, the cost of needed elementary and secondary school facilities, public and private, is estimated by the Office of Education at $12.8 billion. This estimate includes the cost of schools needed for increased enrollment and for replacement of obsolete buildings and those lost by fire, etc.

In addition to the construction requirement for elementary and secondary schools, a substantial program of college and university construction is required for the next 10 years. Total higher education construction needs by 1965 are estimated by the Office of Education to be $12.5 billion, of which approximately $6 billion represents current deficit. The total requirements figure has been reduced by $2 billion, to $10.5 billion, to omit dormitory and other student housing needs.

Hospitals — Civilian hospital bed requirements as of January 1, 1955, as reported in state plans to the Public Health Service under the provisions of the Hospital Survey and Construction Act, totaled 838,000 beds. Existing acceptable beds totaled 1,009,000. Of the additional 838,000 beds needed, the breakdown by type of bed was: general, 193,000; mental, 352,000; chronic, 272,000; and tuberculosis, 21,000. This current backlog of needed hospital construction would involve approximately a $13.5 billion expenditure. Allowance for obsolescence and population growth over the next 10 years would indicate requirements of close to 450,000 additional beds, at a cost of about $7.5 billion, bringing total estimated civilian hospital needs for the 1955–64 period to $21 billion.

The construction of health centers, clinics, asylums, old people's and children's centers, and similar institutional projects normally account for about five per cent of all hospital and institutional construction. Recent reports from the states as to the prospective volume of work pending and eligible for Federal assistance under 1954 amendments to the Hospital Survey and Construction Act indicate a substantial increase in the rate of building in these categories. Pending further study of the long-term effect of expanded Federal aid in these fields the historical relationship has been used in this presentation even though it is probably low. Thus, a requirement figure of $1 billion has been added to cover such facilities, bringing total hospital and institutional construction needs to $22 billion.

Water and Sewerage Works — Construction needs for water and sewerage works over the next 10 years have been estimated at $25 billion by the Water and Sewerage Industry and Utilities Division of the Business and Defense Services Administration of the Department of Commerce. The total current backlog of needed work amounts to $10 billion; new construction for growth requirements, $9 billion; and construction to offset obsolescence occurring during the next 10 years, $6 billion.

Other Public Works — No independent estimates are available on con-

(Continued on page 318)

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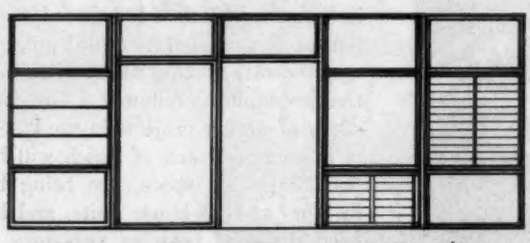
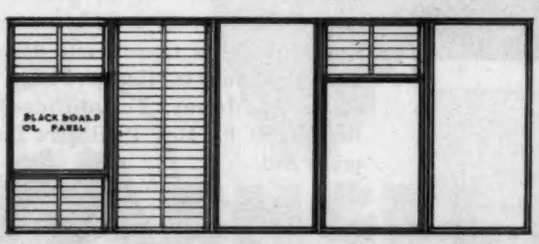


PANEL DISPLAY CASE PANEL | PANEL WINDOW | DOOR WINDOW | JALOUSIE PANEL WINDOW | PANEL LOUVERS PANEL



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1955 MASSEY COMPETITION SCHEDULED FOR NOVEMBER

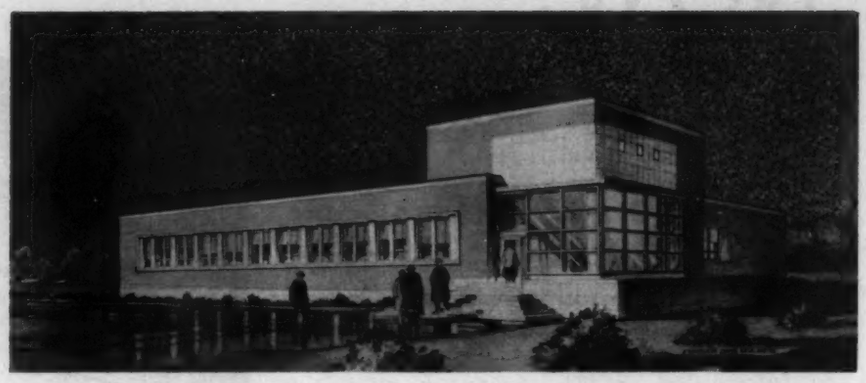
The Massey Medals for Architecture will be awarded for the third time in November of this year, it has been announced by the Royal Architectural Institute of Canada, which administers the program founded in 1950 by the Massey Foundation. The medals are awarded "every second or third year depending upon the amount of building activity in Canada"; previous presentations were made in 1950 and 1952.

The awards include 15 silver medals to be presented to the best entry in each of the categories, and a gold medal to be given to the best entry in the competition. Winners and other entries will be displayed at the National Gallery of Canada and will be sent on a touring exhibition.

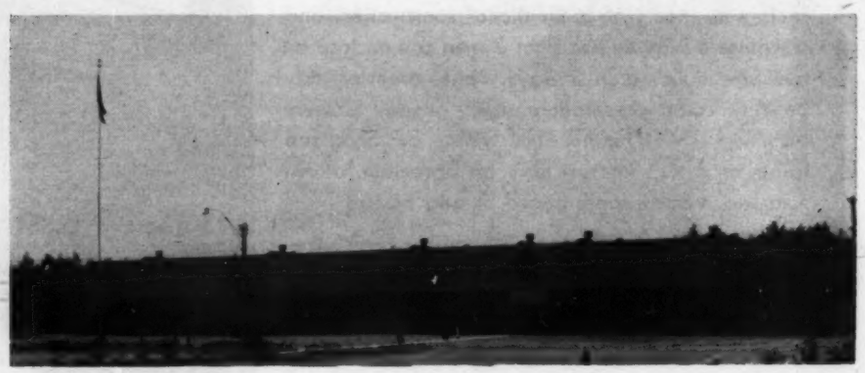
Entries, which are due by October 18, may be submitted by any architect registered in Canada; Canadian buildings completed and occupied for the first time since 1945 are eligible.

Entry forms and further information are available from R.A.I.C. Executive Offices, 88 Metcalfe St., Ottawa 4.

(*Continued on page 30*)

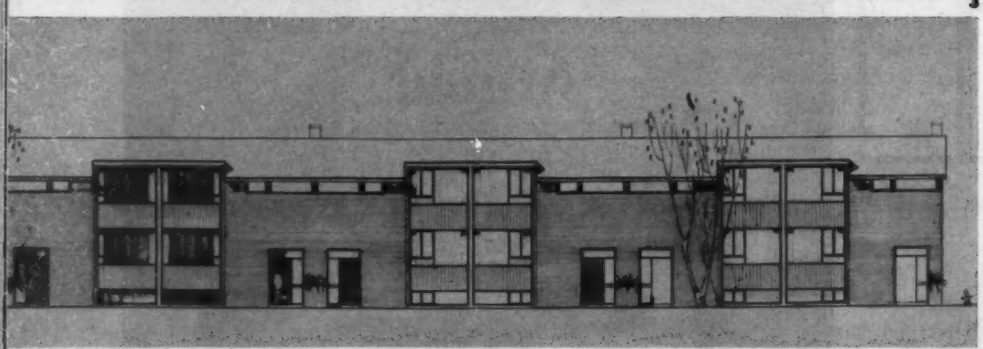


CURRENT INDUSTRIAL BUILDING IN CANADA *includes a research laboratory for Johnson & Johnson Ltd., now under construction at Montreal, designed by architects McDougall, Smith & Fleming; and a newly completed factory for Continental Can Co. of Canada Ltd. at Burnaby, B. C., by architects McCarter, Nairne & Partners*



NEW DEVELOPMENT AT DON MILLS TO PROVIDE 120 THREE-BEDROOM HOUSES FOR RENTAL

3

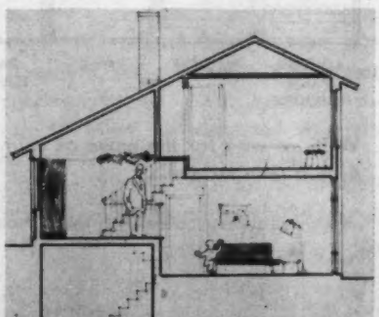


2

Believed to be the first such project in Canada, a block of 120 three-bedroom houses, all intended for rental, got under way recently at Don Mills. Planning of the development followed a six-months study of similar projects in the U. S.

The houses, each of which will have private garden space, are being built in four- and six-house units, and have been designed both as two-story and split-level types. (Cut 1: a section of a split-level unit; Cut 2: elevation of one of the two-story, six-house units; Cut 3: model of over-all site development.) Architects Henry Fleiss and James A. Murray, Toronto, designed the project for Roy P. Rogers Enterprises Ltd.

1



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Central control room is key to more efficient temperature control

THE NEW ERA of electronic efficiency and comfort is coming of age in the southwest. Completion of the new ome of the Second National Bank of Houston sometime ext year will mark an important step in this era.

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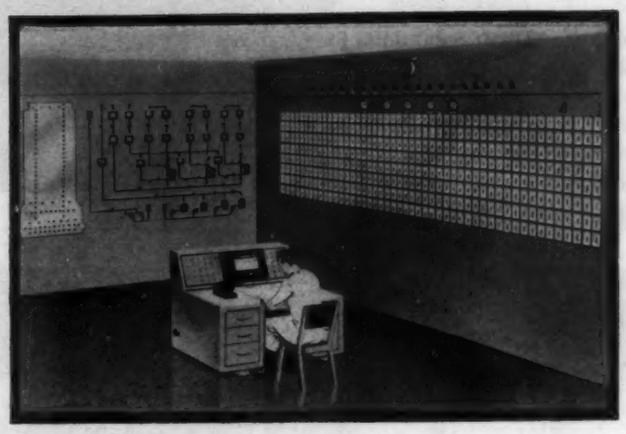
mb Franzheim, architect.
E. Bovay, Jr., consulting engineer.
F. Taylor, engineering consultant.
S. Bellows Construction Corporation, general contractor.
s-Frank Co., mechanical contractor.



Master Control Center gives quick service to tenants and reduces daily building operating costs.

Proudly displayed before the public on the first floor of the building will be the master control center. The Colorgraphic panel at the rear shows at a glance and records the operating conditions of the basic heating and air conditioning plant, to insure peak efficiency and economy.

A single operator can maintain complete control over the entire heating and cooling system. On his desk, he can read the temperature at 318 key points throughout the building. At the panel on the right, he can adjust any of these temperatures to suit the individual's exact requirements. Ventilation in any area can also be adjusted for maximum economy and comfort.

With this master control center, maximum service is given to the building occupants at a minimum cost. Many thousands of dollars are saved by eliminating trips through the building to check temperatures and adjust thermostats. Only Honeywell can provide this coordinated electronic control and recording system.

Without Honeywell Electronic Control, 318 check points

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THE RECORD REPORTS

NEWS FROM CANADA

(*Continued from page 26*)

NEW BRUNSWICK OFFICERS NAMED AT YEARLY MEETING

Convening recently at Saint John for its annual meeting, the Architects Association of New Brunswick elected Neil Stewart of Fredericton to the presidency. Other officers include Stanley Emmerson, Saint John — immediate past president; Rolph Duschenes, Saint John — vice president; H. Claire Mott, Saint John — secretary-treasurer; and Douglas W. Jonsson, Fredericton — councillor.

Spruce Cliff Apartments, at Calgary, Alta., were designed by architects Rule, Wynn and Rule, of Calgary

TORONTO CHAPTER HOLDS ITS ANNUAL CONVENTION

Concentrating much of its attention on building and zoning problems in Toronto, the Toronto Chapter of the Ontario Association of Architects met late in May for its annual convention.

Committee reports included one from the Toronto Building Bylaw Committee on progress made in establishing a Joint Committee for Metropolitan Toronto, composed of representatives of the municipalities and of professional and trade organizations, to secure the adoption of the National Building Code as the official building bylaw for the area.

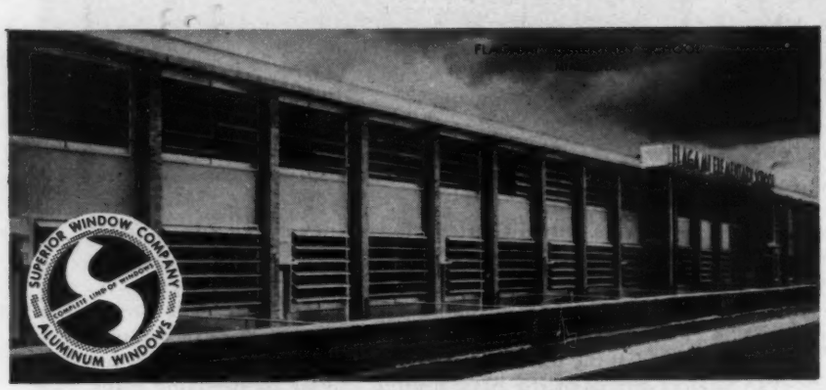
The Zoning Bylaw Ruling Committee reported its efforts to prevent "spot re-zoning," an expediency, the report said, which would be unnecessary if the original zonings were established with foresight.

The new executive officers, who will elect officers from their own number, are George Whale, R. G. Calvert, George Abram, Rolph Smyth, James Craig and Loren Oxley.

HOUSING NOTES

The Central Mortgage and Housing Corporation announced in the most recent issue of its quarterly *Housing in Canada* that the 1954 total of mortgage loans for housing construction was a record figure: $632 million, against the $374 million total for 1953. Banks, for

(*Continued on page 32*)



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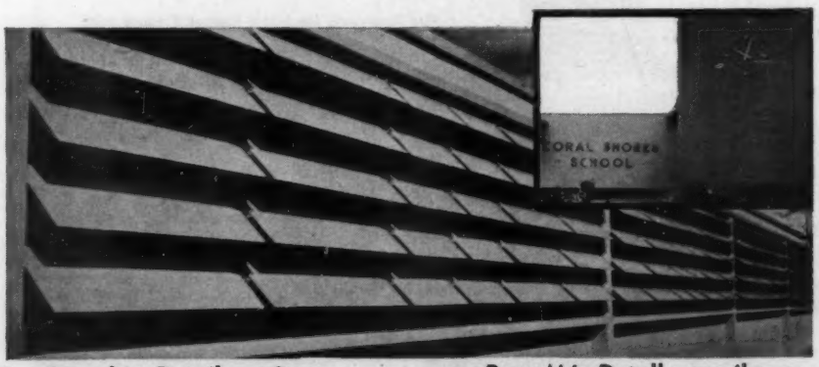

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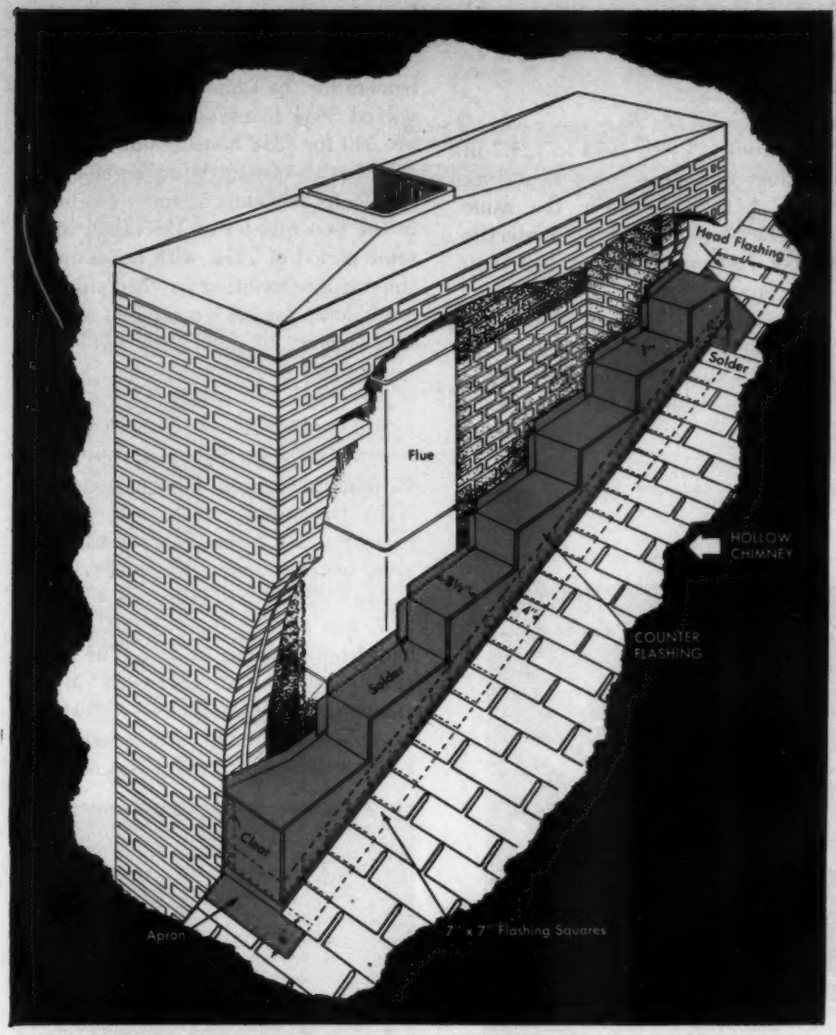
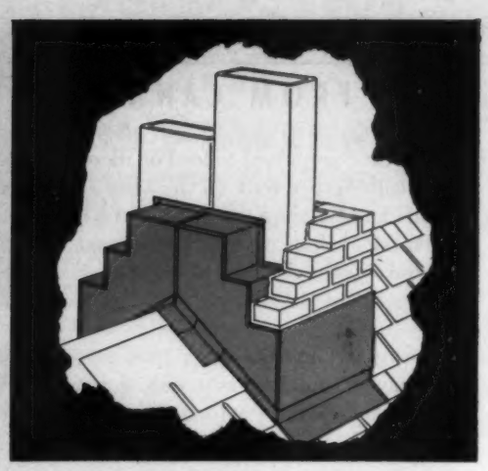
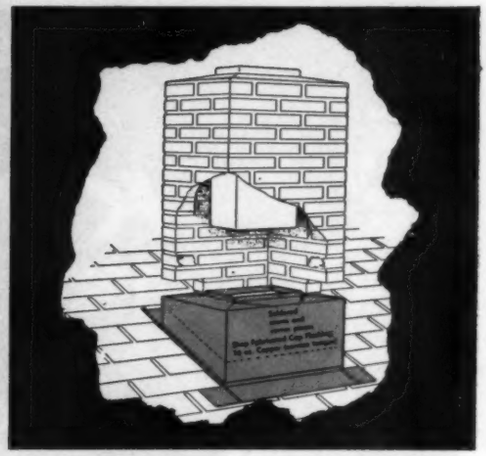


CHIMNEY OF ARCHITECTURAL DESIGN—Through-to-flue counter flashing, turned up 1" at flue, installed over base flashing at 7" x 7" squares.



CHIMNEY AT RIDGE—Flashing consists of apron at lower edge of chimney, soldered returns at corners, flashing squares leafed between shingles. Cap flashing set to form counter flashing.



CHIMNEY IN SLOPE—Single flue 8½" x 13". Base flashing formed as flange with 4" apron overlapping shingles; 12"-wide head flashing; 4"-wide flashing flange at sides of chimney.

Stop leaks before they start with Anaconda through-to-flue copper flashing

Faulty chimney flashing probably causes more trouble and repair expense than any other detail in roof construction. Leaks often appear soon after completion, and tempers flare. The owner and contractors wrangle over who is to blame.

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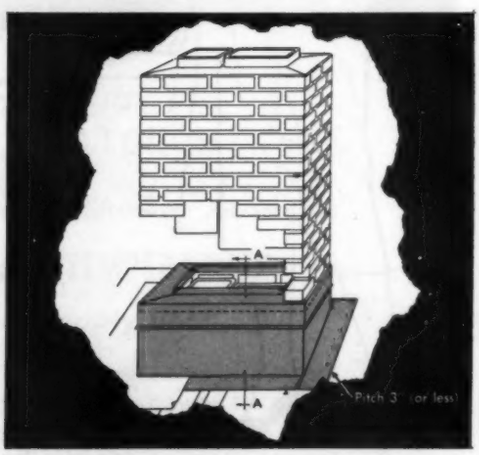
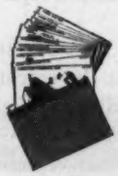
The through-to-flue flashing designs indicated in drawings on this page will prevent all water, including that which has been absorbed by the masonry, from seeping downward into the interior of the building.

Copper by Anaconda combines advantages offered by no other commonly used flashing material. It is, of course, rust-proof. It is not affected by mortar. It is easily soldered, assuring you that the flashing you design will have permanently tight joints. 8554



CHIMNEY IN FLAT ROOF—Base flashing must be *water-tight*, soldered at all joints. Counter flashing carried through masonry, turned up 1" at outer surface of flue.



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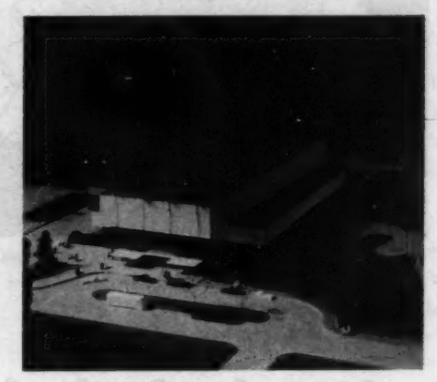
(*Continued from page 30*)

the first time permitted to lend on mortgages, lent 41 per cent of the total in the nine months since the passing of the new National Housing Act. The average loan, the report says, rose to $9944 from 1953's figure of $8496.

Housing in Canada also reported that the index of building materials costs, based on an index of 100 for 1949 prices, declined from 123.9 in 1953 to 121.7 in 1954, while the wage component rose from 132.0 to 138.0 over the same period. The combined index of materials and labor costs increased by less than one per cent.

During the first three months of 1955, NHA undertakings-to-insure were issued for 7279 loans totalling $81,132,416 for 8577 housing units, CMHC has reported. NHA lending activity by approved lenders for the same period in 1954 involved 5953 loans amounting to $73,376,590 for 9338 housing units. CMHC said that the proportion of home-ownership loans, reckoned in units, was higher in the first quarter of 1955 than in the same period of 1954, with home-ownership loans accounting for 7310 units and rental loans for 1267, compared with the 1954 figures of 5895 and 3443 units respectively.

Still another report from CMHC discloses that, since 1948, the average size of families buying houses under the NHA has steadily increased; from an average size of 3.1 in 1948, these families grew to an average 3.4 in 1953. The average age of purchasers in 1948 was 33.7, rose to 35.0 in 1951 but by 1953 had dropped again to 33.9. The report also points to an increased income among younger purchasers — in 1948 the average age of a man earning more than $5000 was 38.8; in 1953 it was 35.6.



MEMORIAL WILL BE BUILT AS A COMMUNITY CENTER

A Memorial Community Center, to be built at an estimated cost of $850,000, has been planned for Peterborough, Ont. The center, which will contain an artificial ice arena, will be used for hockey games as well as other sports events, for concerts, shows and drama, for conventions and political meetings, and for trade and agricultural fairs.

Seating arrangements will accommodate 2900 in permanent seats, while chairs on the floor of the arena will raise the capacity to 6318; standing room, for which separate entrances will be provided, will further increase the capacity to 8150.

A memorial lobby, to measure 40 ft by 85 ft, will be placed at the entrance.

Black, Craig and Zeidler, of Peterborough, are the architects.

(*Continued on page 36*)

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Their Safety Is Important

Safeguard Showers with POWERS

Some of the more than 60 showers in this modern school regulated by Powers Mixers

Architect: CHARLES W. NICOL & ASSOCIATES • Mechanical Engineer: JOHN K. FAIRBAIRN
Plumbing Contractor: M. J. CORBOY CORP., All in Chicago

POWERS *Thermostatic* **WATER MIXERS**

Give Double Protection Against Shower Accidents

Caused by PRESSURE *and* TEMPERATURE

fluctuations in water supply lines

No Shower is Safe Without this Double Protection — Powers thermostatic water mixers *always* hold the shower temperature constant wherever the bather wants it. They are completely automatic. Failure of cold water instantly shuts off the shower. Delivery temperature is *thermostatically* limited to 115° F. Simple, Durable Construction of Powers Mixers insures long life and minimum of maintenance.

Powers Thermostatic Water Mixer complies fully with Veterans Hospital safety requirements and Federal Specifications WW-P541a.

10 to 20% Water Saving. No need to get out of shower and readjust it because of fluctuating water temperature.

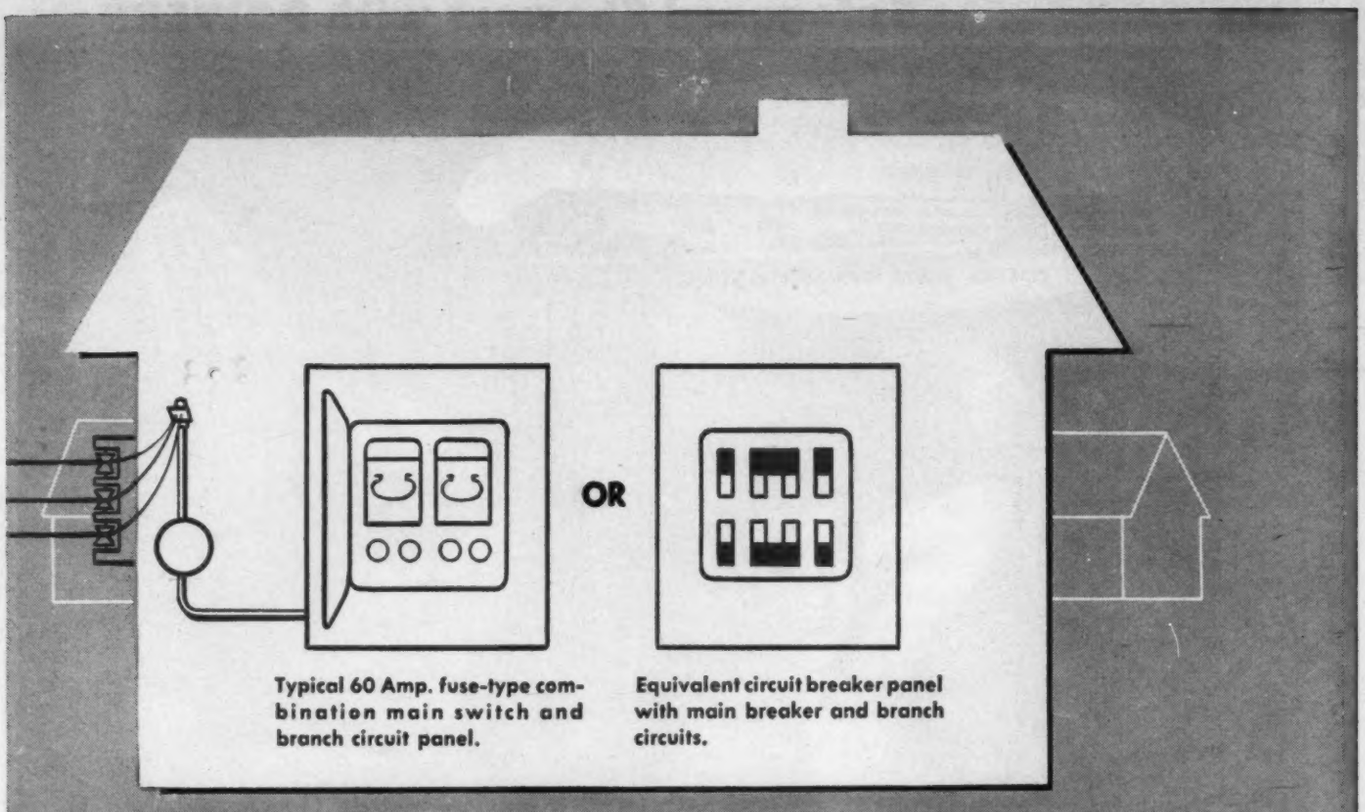
***ONE Shower Accident* May Cost Many Times More than POWERS MIXERS.**

(b62)

For Utmost Comfort, Safety and Economy Install Powers Mixers • Write for Bulletin 365.

Established in 1891 • **THE POWERS REGULATOR COMPANY** • SKOKIE, ILL. • Offices in Over 50 Cities

HOW DO YOUR HOMES RATE IN



Typical 60 Amp. fuse-type combination main switch and branch circuit panel.

Equivalent circuit breaker panel with main breaker and branch circuits.

UNDER-POWERED

60 AMPERES, 120/240 VOLTS

The 60 Amp. house has a basic electrical capacity of *14,400 Watts*. This will supply lighting and plug-in appliances, plus range.

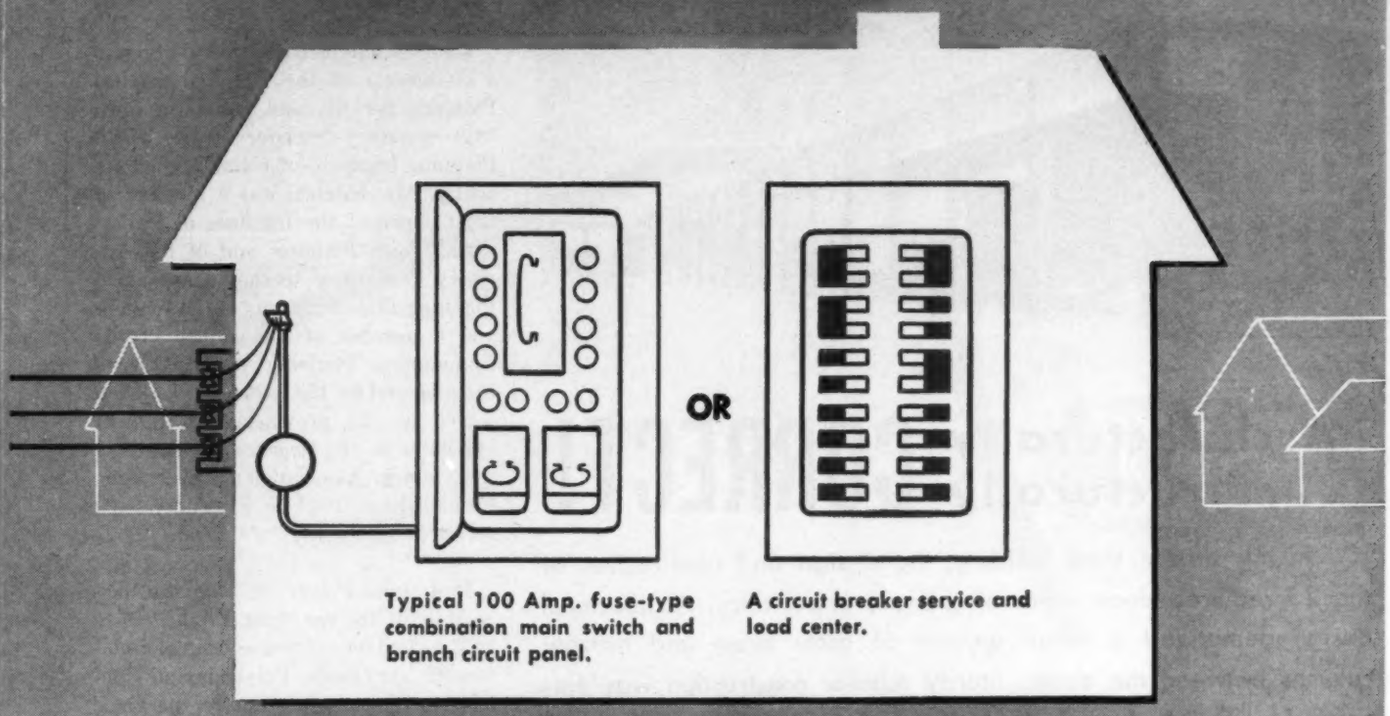
The system would have to be enlarged before any of the major appliances listed under "Full-powered" could be added.

A 60 AMP. SERVICE ENTRANCE JUST ISN'T

Wires *large* enough to carry full, healthy loads of current . . . *plenty* of circuits for both large and small appliances . . . *sufficient* outlets to feed current to every spot where it's needed. *These* are the vital factors to consider when planning a truly modern home!

Before a home can be *called* modern, it must *function* in a modern manner! Home wiring must not only meet the electrical needs of today – it must also look ahead to the future. Too often, the addition of a single new appliance can quickly change the adequately

THEIR SERVICE ENTRANCE EXAMS?



Typical 100 Amp. fuse-type combination main switch and branch circuit panel.

A circuit breaker service and load center.

FULL-POWERED

AT LEAST 100 AMPERES, 120/240 VOLTS

The modern, "Full-powered" house has an electrical capacity of 24,000 Watts — enough power for home lighting and plug-in appliances PLUS the major appliances listed on the right.

Automatic Washer	700 watts	Home Freezer	350 watts
Dishwasher — Waste-Disposer	1500 "	Water Pump	700 "
Waste-Disposer alone	500 "	Built-in Heaters	1000-1650 "
Electric Clothes Dryer	4500-9000 "	Room Air Conditioner (¾ ton)	1200 "
Water Heater	2000-4000 "	(1 ton)	1540 "

ENOUGH FOR THE HOUSES YOU PLAN TODAY!

wired home of today into the *underwired* home of tomorrow!

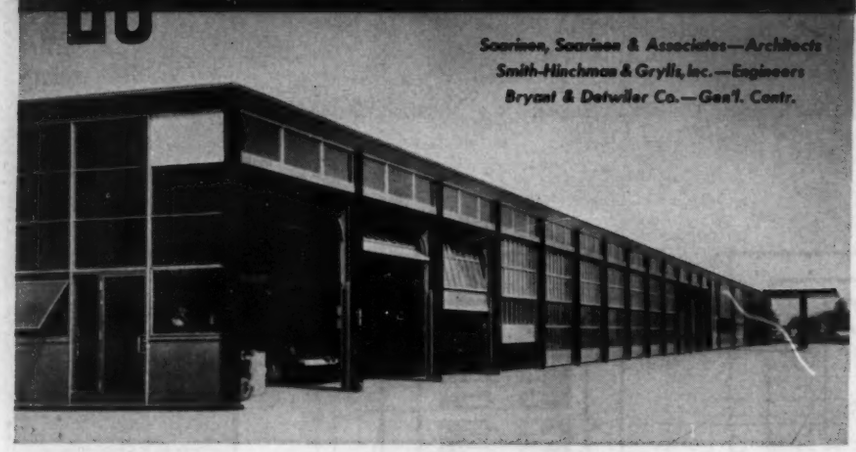
Avoid this! Plan your homes with an accent on sound, adequate wiring – your clients will appreciate your foresight in bringing them a home that will *stay* modern for years!

Free Home Wiring Wall Chart! Send today for Kennecott's handy wall chart showing typical home circuit loads. Use it as a check list when planning home electrical systems. For your copy, write Kennecott Copper Corp., 161 E. 42nd St., New York 17, N. Y.

Kennecott Copper Corporation

Fabricating Subsidiaries: CHASE BRASS AND COPPER CO. • KENNECOTT WIRE AND CABLE CO.

BYRNE Turnover Doors



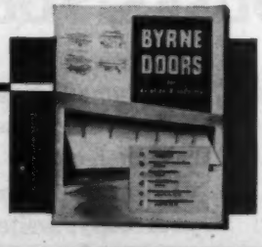
Architecturally ...Structurally CORRECT!

In this service shop building, the design and construction of the 25 required doors were of primary importance. Architectural design demanded a large amount of glass area and narrow columns between the doors. Sturdy tubular construction was employed to provide the necessary structural strength and, to eliminate counterweights on the columns, hoist operators were used. The result . . . a facade of doors of excellent appearance and built for long, dependable service.

Byrne Custom Turnover Doors are manufactured for openings up to 25 feet wide by 25 feet high. Standard Turnover Doors are furnished for openings up to 14 feet wide by 14 feet high. Requiring no more than two feet of head room above the lintel, in open position these doors project back into the building slightly more than half of the door opening height. All are constructed with wedge tight weathering and are equipped with safety operators with integrally mounted, self-adjusting limit switches.

This FREE Catalog

provides complete information on the various types of Byrne Doors built for industrial buildings and aircraft hangars. Write for your copy or refer to it in Sweet's.



BYRNE doors, inc.

THE RECORD REPORTS

NEWS FROM CANADA

(Continued from page 32)

OBITUARIES

John M. Kitchen, of Ottawa, who was a co-director of the National Capital Planning Service, and had been since 1921 secretary-treasurer of the Town Planning Institute of Canada, died recently. Mr. Kitchen was a member of the Council of the Institute of Professional Town Planners and of the Advisory Committee to the Ottawa Area Planning Board. He was also a founder and a member of the council of the Community Planning Association of Canada, and for the past nine years had served as the provincial government appointee to the Registration Board of the Ontario Association of Architects. From 1919 to 1940 he was supervising architect for the City of Ottawa.

Prof. Jules Poivert of Montreal died recently at the age of 88. From 1910 to 1952 he had served first as dean of architecture at l'Ecole Polytechnique and later in the same position at the Ecole des Beaux-Arts. Professor Poivert was also an accomplished musician, and had studied under César Franck.

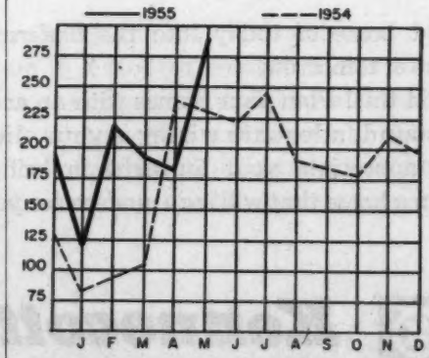
Walter Seymour Allward, Canadian sculptor and sometime carpenter, brickmaker and architect, died recently. He is remembered for his monumental sculpture, and particularly for the Vimy Ridge Memorial, dedicated to the Canadian dead in World War I.

Mr. Allward, who had been made an honorary fellow of the Royal Architectural Institute of Canada, was the father of architect Hugh L. Allward of Toronto.

(More news on page 38)

Contracts Awarded: Comparative Figures*

(in $ million)



*Compiled by the editor and staff of *The Building Reporter*, from information collected by MacLean Building Reports

proved

Actual bids are confirming this Nesbitt claim!

You, too, can save with this Nesbitt Series Hot Water Wind-o-line System

Every day brings reports of new school awards in which heating and ventilating costs are 20% or more below the norm because of the protective Nesbitt Series Wind-o-line System—in which the tubing serves as the supply and return mains.

Heating and ventilating classrooms with Nesbitt Syncretizers and Wind-o-line Radiation in series hot water circuits, saves 20% or more of the construction, equipment, and installation costs of conventional piping systems with trenches and runouts.

For instance: One new $1,481,000 Pennsylvania school ($162,000 for heating and ventilating) saves an estimated $42,000 with the Nesbitt System—by a reduction in pipe trenches, smaller pipes and pumps, and less pipe covering and controls.

A new Ohio school will get Nesbitt unit ventilation and Wind-o-line protection for less than the estimated cost of warm-air heating! Other new schools will enjoy the increased comfort and cold-wall protection of this system at comparably lower costs.

Although savings and convenience are undeniable advantages of the Series Wind-o-line System, of added importance are the increased comfort of variable water temperature control, cold surface protection, off-time temperature maintenance.

If you don't have Publication 104 be sure to send for it today.

Made and sold by John J. Nesbitt, Inc.
Sold also by American Blower Corporation

Nesbitt

THE HEATING AND VENTILATING SYSTEM THAT SETS A NEW STANDARD OF CLASSROOM COMFORT

Construction cost data bulletins free on request

JOHN J. NESBITT, INC., PHILADELPHIA 36, PA.
Please send a copy of Publication 104 ☐
Send me data showing construction costs of schools using Nesbitt Series Wind-o-line System ☐

Name_____

Address_____

City_____ State_____

HOW MUCH FOR HILL-BURTON? NEW HOSPITAL AID BILL LAGS

Senate-House conferees were working on the 1956 appropriations measure containing funds for the Hill-Burton hospital construction program. The Senate had voted to restore the full $125 million asked by the Department of Health, Education, and Welfare. The House had cut the agency's request to $96 million. The $125 million figure — and the compromise to come from conference — was to cover the total program. This includes the four additional categories of construction authorized by Congress last year: nursing homes, facilities for the chronically ill, diagnostic treatment centers and rehabilitation centers.

As of late May, three states had completed surveys for the four new categories, and their plans had been approved by the U. S. Surgeon General. Unused survey funds from last year would be carried over to fiscal 1956.

Hospital "FHA" Bill Lags

The Administration health bill, which included a proposal for Federally insured loans for constructing hospitals, clinics, nursing homes and other health institutions, was being heard by the House Interstate and Foreign Commerce Committee. It was proposed to hear all titles of the bill and report out final legislation sometime before the end of the current session, but only Title VI — mental health — had been heard, and no date was set for future meetings.

Title II, embracing the "FHA" plan for hospital buildings, called for government backing of private credit — encouragement to banks and other private lending institutions to make substantial loans for construction of health facilities. Where such credit presently is available, it usually is limited to such a low proportion of total building cost that prospective sponsors cannot raise the balance as "down payment." Under the Title II proposal, Federal insurance would be made available, in return for premiums paid by the lending institutions, for loans to non-governmental sponsors for construction or renovation of hospitals, clinics, nursing homes, and related health facilities.

The President, in his January 31 health message to Congress, called attention to the success of the government-insured loan in other fields and urged that this "tested procedure" be applied to health facility construction.

A similar plan, contained in the Wolverton bill, was "heard" by the same committee last year, but no bill was reported.

SENATE WAITS ON SCHOOLS, HOUSE GROUP WRITING BILL

Legislative action on Federal aid to school construction continued to lag through May and early in June the Senate Education and Labor Committee had not yet scheduled an executive meeting to mark up its own bill. The Salk vaccine matter and the minimum wage bill were of such urgent importance that the school aid legislation had to be

(*Continued on page 272*)

SCHOOL FLOORS THAT OUTLAST THE BUILDING

for Gymnasiums, Classrooms, School Shops

ROBBINS IRONBOUND* CONTINUOUS STRIP* NORTHERN HARD MAPLE FLOORING

You're looking at a floor designed to "take it"! Uniformly resilient, tight grained and splinter resistant, it will still be smoothly beautiful for generations to come.

To achieve this happy combination of beauty and long run economy Robbins uses finest strips of Northern Maple, laid in mastic and interlocked with saw-tooth steel splines at the end of each strip. That's why a Robbins IRONBOUND CONTINUOUS STRIP floor stays tight and smooth so many times longer.

When you are planning a new school or a remodeling of an existing structure find out how Robbins can help you in solving flooring problems. Write for information. Facts also in Sweets Catalog — File 12 J / ST

Address inquiries to Robbins Flooring Company Reed City, Michigan.

MILLIONS WALK DAILY ON ROBBINS FLOORING

ROBBINS FLOORING COMPANY

WORLD'S LARGEST MAPLE FLOORING MANUFACTURER

Reed City, Michigan • Ishpeming, Michigan

* T.M. Reg. U.S. Pat. Off.

The shingles illustrated here are Lindenwold. Other available colors are: Peacock Blue, Antique Red, Green Pastel, Red Pastel, and Rustic Brown.

Colorful roofs make satisfied clients!

SPECIFY K&M "DUALAY" ROOFING SHINGLES

Plan colorful shingles for the roof, and watch your client's eyes light up. Any of the six "Dualay" colors—like the one pictured above—makes a roof smart and attractive. Home owners also appreciate the rugged, long-lasting quality of these shingles.

Ahead in features. K&M "Dualay" Roofing Shingles are remarkably durable. Made of asbestos fiber and portland cement, they offer lifetime roofing protection. They won't burn or rot; in fact, they become harder with age. And because they're "anchored" in place, they're especially wind-resistant. Self-aligning "Dualay" shingles are easy to apply.

Details in Sweet's Files. See Sweet's Architectural Files for additional information on K&M Roofing Shingles. While you're looking them up, check into K&M Siding Shingles—also made with modern color appeal.

Folder sent on request. K&M will gladly send a full-color folder showing these shingles in "matched" colors, and giving other valuable information. Write today.

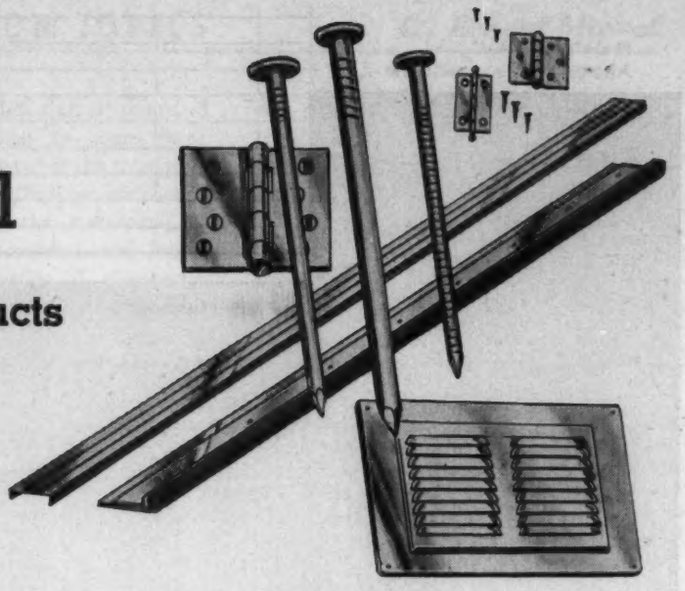
Can be laid up two ways— with either straight butt or thatched. Straight butt effect of "Dualay" shingles is pictured here; thatched butt effect is shown in upper illustration.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

K&M best in asbestos®

Why men are easier to sell

with aluminum building products



MEN UNDERSTAND the extra quality they get when you build with *aluminum* products like nails that won't stain siding . . . weatherstripping that holds up under all conditions . . . hardware that takes roughest usage . . . foundation vents that last the life of the house.

MEN VALUE the worksaving features of *aluminum* products like screening that will not cause stains under windows and can be left up the year around . . . gutters and downspouts that never rust or need painting . . . shingle roofing that practically eliminates maintenance.

MEN GO FOR the house that gives them all the advantages of *aluminum* in such products as insulation that cuts fuel bills . . . termite shields that also resist moisture damage . . . duct-work that gives greater heat delivery and gas vents that resist corrosion . . . attic louvers that stand up in any weather.

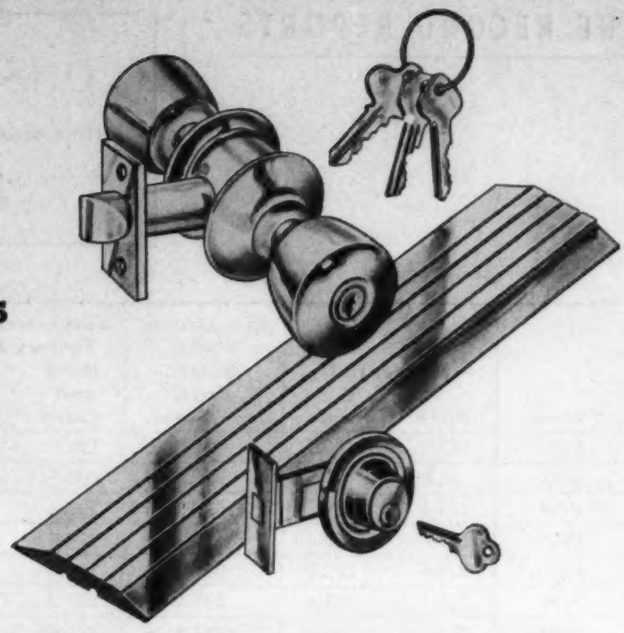
Your speculative houses will be easier to sell to the whole family when you use plenty of aluminum products, because there are aluminum products that appeal to every taste.

As a basic producer of aluminum, we do not make any of the products shown here. Instead, our efforts are put behind the job of serving manufacturers—to help improve their products and reduce costs.

Engineering assistance is available from our qualified aluminum engineers. Or for names of building products manufacturers who will be glad to work with you, contact the Kaiser Aluminum sales office listed in your telephone directory. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office,* Palmolive Bldg., Chicago 11, Illinois; *Executive Office,* Kaiser Bldg., Oakland 12, California.

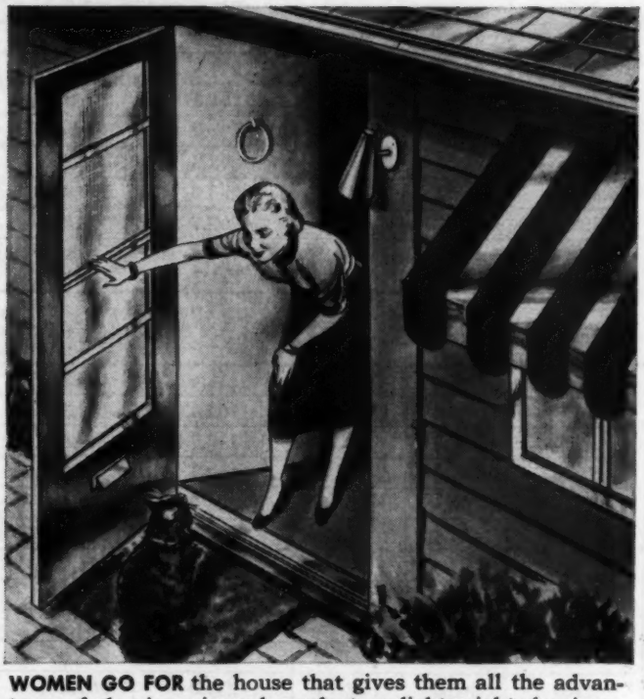
Why women are easier to sell

with aluminum building products



WOMEN UNDERSTAND the quality look of a house built with *aluminum* products like door knobs that give a bright, handsome welcome to her friends . . . locks and keys that stay strong and beautiful . . . clean-looking thresholds that resist wear . . . light fixtures that add a smart, modern touch.

WOMEN VALUE the worksaving features of *aluminum* products like wall tile in stunning colors that can be left wet and still won't rust . . . attractive shower doors and bathroom accessories that shine right up with an easy wipe.



WOMEN GO FOR the house that gives them all the advantages of *aluminum* in such products as lightweight aluminum combination storm and screen doors that are easy for her to open, close and change . . . beautiful awnings that keep her house cool . . . moldings that take the kids' hard knocks . . . windows that say "it's a quality home!"

Kaiser Aluminum

setting the pace—in growth, quality and service

Kaiser Aluminum helps build demand for aluminum products like these through consistent, colorful advertising in national magazines like Saturday Evening Post and Time.

CONSTRUCTION COST INDEXES

Labor and Materials — **U. S. average 1926–1929 = 100**

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
1952	278.2	274.8	271.9	274.9	271.8
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
Feb. 1955	286.5	279.4	293.2	301.7	294.8
Mar. 1955	287.2	283.3	293.3	301.8	295.0
Apr. 1955	287.8	281.0	293.7	302.0	295.3
	% increase over 1939				
Apr. 1955	133.0	129.6	124.7	126.4	127.0

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.3	224.6	221.3	221.8	223.0
1954	219.6	219.1	223.5	225.2	225.4
Feb. 1955	221.0	220.8	224.9	227.0	227.6
Mar. 1955	222.4	222.6	225.2	227.2	228.0
Apr. 1955	222.6	222.8	225.5	227.4	228.2
	% increase over 1939				
Apr. 1955	158.0	168.1	137.1	133.5	241.0

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.6	259.2
1954	266.6	260.2	263.7	273.3	266.2
Feb. 1955	266.6	260.2	265.4	275.1	268.7
Mar. 1955	267.6	261.5	265.6	275.2	268.9
Apr. 1955	270.6	264.4	270.1	280.0	273.9
	% increase over 1939				
Apr. 1955	145.6	147.1	127.5	133.7	130.2

SAN FRANCISCO

1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.6	259.7
1954	257.4	249.2	264.1	272.5	267.2
Feb. 1955	260.8	252.8	267.2	276.3	270.8
Mar. 1955	262.0	254.1	268.3	277.5	272.0
Apr. 1955	264.5	256.0	271.2	281.6	275.4
	% increase over 1939				
Apr. 1955	150.5	157.8	131.08	131.0	136.4

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95
(both indexes must be for the same type of construction).
Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.

FLORA BALLAST* SHOWS how easy it is to make across-the-counter in-warranty replacement of G-E ballasts at no cost to you, from your nearby G-E Ballast Service Center Distributor. They carry ample stocks of G-E ballasts from which you can select replacements for any make ballast.

Flora explains how . . .*

More Than 800 G-E Ballast Service Centers Help You Save Lighting Dollars

When it is necessary to obtain an immediate ballast replacement you'll get prompt service at the G-E Ballast Service Center Distributor located nearest you. The complete stocks and convenient location help you save time and money. There are G-E Ballast Service Centers in every major city—more than 800 of them in the United States. Here you can make NO CHARGE in-warranty replacements of G-E ballasts . . . and replace *any make* ballast with a high quality G-E unit. And G.E. gives you top quality at low attractive prices too. Save time and money—solve your ballast replacement problems at your nearest G-E Ballast Service Center.

When you buy G-E ballasts you get other services too. G.E. maintains a network of national warehouses to speed volume orders. More than 150 trained sales engineers from G-E Apparatus Sales Offices are available to give you help in applying G-E ballasts and in servicing G-E ballast installations.

A G-E ballast tag or sticker on your fixture is proof that it is equipped with the best in ballast value. It's the easy way to be certain. For a complete presentation on G-E ballasts, contact the G-E Apparatus Sales Office nearest you or write Section 401-16, General Electric Company, Schenectady 5, New York.

*Miss Fluorescent Ballast, G.E.'s Ballast Mascot

Copyright 1955, General Electric Company

EXPERIENCED G-E BALLAST ENGINEERS are available to help you plan and service fluorescent lighting applications. For help, contact your nearest G-E Apparatus Sales Office.

Five more reasons why

GENERAL ELECTRIC IS YOUR BEST BALLAST VALUE

- **EXCLUSIVE SOUND RATING SYSTEM**
- **SUPERIOR QUALITY CONTROL**
- **LONGER BALLAST LIFE**
- **PRECISE LAMP-MATCHED DESIGN**
- **PROVED PRODUCT LEADERSHIP**

Progress Is Our Most Important Product

GENERAL ELECTRIC

Lane Bryant Store, Miami Beach, Fla.

"Bigelow Gropoint meets our specifications for quality, color, texture and durability,"

say architects Sanders, Malsin & Reiman

The outstanding architectural firm of Sanders, Malsin & Reiman numbers the Lane Bryant stores, the Coward Shoe Company, Bostonian Shoes and Grayson's among its distinguished clients. In planning a store, this reputable firm puts behind every specification a complete understanding of merchandising values, attractive design and the need for creating a "selling" environment.

The selection of carpet for the Lane Bryant store in Miami Beach logically fell to Bigelow Gropoint.®

Don Reiman

Arthur Malsin

Only Bigelow Gropoint can offer so much beauty, so much ruggedness of wear under traffic—at so reasonable a cost for a project budget! Gropoint is a Lokweave.® That means the most economical repair of damage or easy relocation.

Here's what Sanders, Malsin & Reiman have to say about Bigelow Gropoint!

"Since the floor is the biggest single surface in any store, it requires careful choice of covering. In this case we chose the charcoal grey Bigelow Gropoint to meet our specifications for quality, color, texture and durability. Bigelow Gropoint enhances the décor, adds to the comfort of customers and personnel."

Consult Bigelow's trained carpet specialists for the right color, pattern and weave . . . at the right price for your project budget. This service is available to you free of charge.

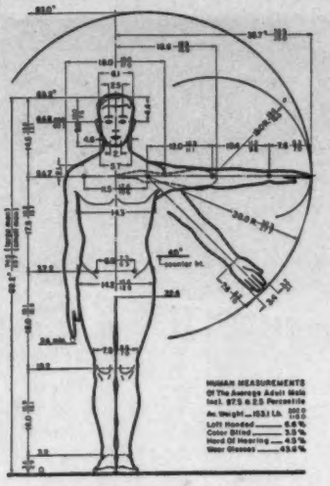
Get in touch with Bigelow today by calling the sales office nearest you or by writing to Bigelow Contract Dept., 140 Madison Avenue, New York 16, N. Y.

BIGELOW Rugs – Carpets

Bigelow . . . Number 1 name in Carpets

Bigelow sales offices are located in the following strategic cities: Atlanta, Ga.; Boston, Mass.; Buffalo, N. Y.; Chicago, Ill.; Cincinnati, Ohio; Cleveland, Ohio; Dallas, Tex.; Denver, Col.; Detroit, Mich.; Hartford, Conn.; High Point, N. C.; Kansas City, Mo.; Los Angeles, Calif.; Minneapolis, Minn.; New York, N. Y.; Philadelphia, Penna.; Pittsburgh, Penna.; St. Louis, Mo.; San Francisco, Calif.; Seattle, Wash.

see our catalog in
ARCHITECTURAL FILE
12L Bi
or write for copy



ALL FOR JOE AND JOSEPHINE

Designing for People. By Henry Dreyfuss. Simon and Schuster (New York) 1955. 240 pp, illus. $5.00

THESE ARE DAYS WHEN TECHNICAL ADVANCES occur with seemingly unending and surprising rapidity. Machines are unshackling men and women in factories and offices from long hours of drudgery; transportation is a whiz compared to the horse and buggy days; and communication can be accomplished by the push of a button and the lifting of a receiver. Now, at last (they say), man has more leisure to enjoy the finer things in life.

With this leisure the records show that more people are going to museums, becoming amateur painters, attending concerts and reading books ("do it yourself" and others). The fine arts are being brought to their attention through TV, travelling art shows, women's magazines and the local theater. The phrases "good design," "esthetics," and "culture" seem to be dropped every where from Madison Avenue martini parties to the factory assembly lines.

Out of this rather strange two-headed phoenix has been born a new profession — the Industrial Designer. Industrial design has been defined as "the application of taste and logic to the products of machinery."

An industrial designer does more than design things. He has to understand the business world and the problems of merchandising — must know the methods of manufacturing and packaging, shipping and displaying. He is the liaison between management, engineer and consumer.

Although it is a twentieth century profession, industrial design has its ancestral heroes: Leonardo, Ben Franklin and Thomas Jefferson — to mention a few — all men with creative imagination. One of the twentieth century heroes is Henry Dreyfuss.

Mr. Dreyfuss' background for the profession was the theater. As a young man he was designing stage sets for the Strand Theater. This isn't so far afield as it might sound, for a stage designer has to design in limited time things that must work — door knobs have to turn, entrances and exits have to be placed correctly — and above all the sets have to be attractive as well as workable.

An immovable tree caused Mr. Dreyfuss to leave this business. A short time later Macy's offered him the job of redesigning the form, shape and color of products that lacked appeal. The young designer refused a rather lucrative offer on the grounds that products must be designed from the inside out rather than glossed over.

This has been the key to the office which opened in 1929 at 580 Fifth Avenue. Early in those depression days the office was held together by garters, perfume bottles and belt buckles that needed redesigning.

Since those first days the climb has been steadily upward — a climb to telephones, the interiors of ocean liners and planes, important assignments from the government and bank vault doors (to mention a very few). Among the latest of Mr. Dreyfuss' accomplishments is a book relating "everything — absolutely everything I know about industrial design."

Designing for People has a hero and heroine — Joe and Josephine. Occupying the places of honor in Mr. Dreyfuss' New York and California offices are portraits of Joe and Josephine and their sons and daughters of all ages. They are austere line drawings with measurements written all over (see above), which serve to remind the staff that everything they design is used by people. These portraits represent many years of research — not only into the physical but psychological aspects.

Touch, color, illumination, position, odors, sound, reach — all are tried out on Joe and Josephine — often under a doctor's scrutiny. In other words — the industrial designer's task is twofold — to fit a client's wares to Joe's and Josephine's anatomies, and to explore their psychology. And there is little likelihood that the problems will ever be solved, new ones always loom on the horizon.

Mr. Dreyfuss goes on to tell us how the industrial designer works (he speaks mostly from his own experience) and shows us examples of the results. Client-designer relations, money and procedure are discussed in detail.

One of the most exciting chapters deals with research and testing. "I have washed clothes, cooked, driven a tractor, run a Diesel locomotive, spread manure, vacuumed rugs, and ridden in an armored tank. I have operated a sewing machine, a telephone switchboard, a corn picker, a lift truck, a turret lathe and a linotype machine. When designing the rooms in a Statler hotel, I stayed in accommodations of all prices. I wore a hearing aid for a day and almost went deaf. I stood beside a big gun at Aberdeen Proving Grounds when it was fired and was catapulted off my feet.

(Continued on page 48)

Rolling Steel Doors

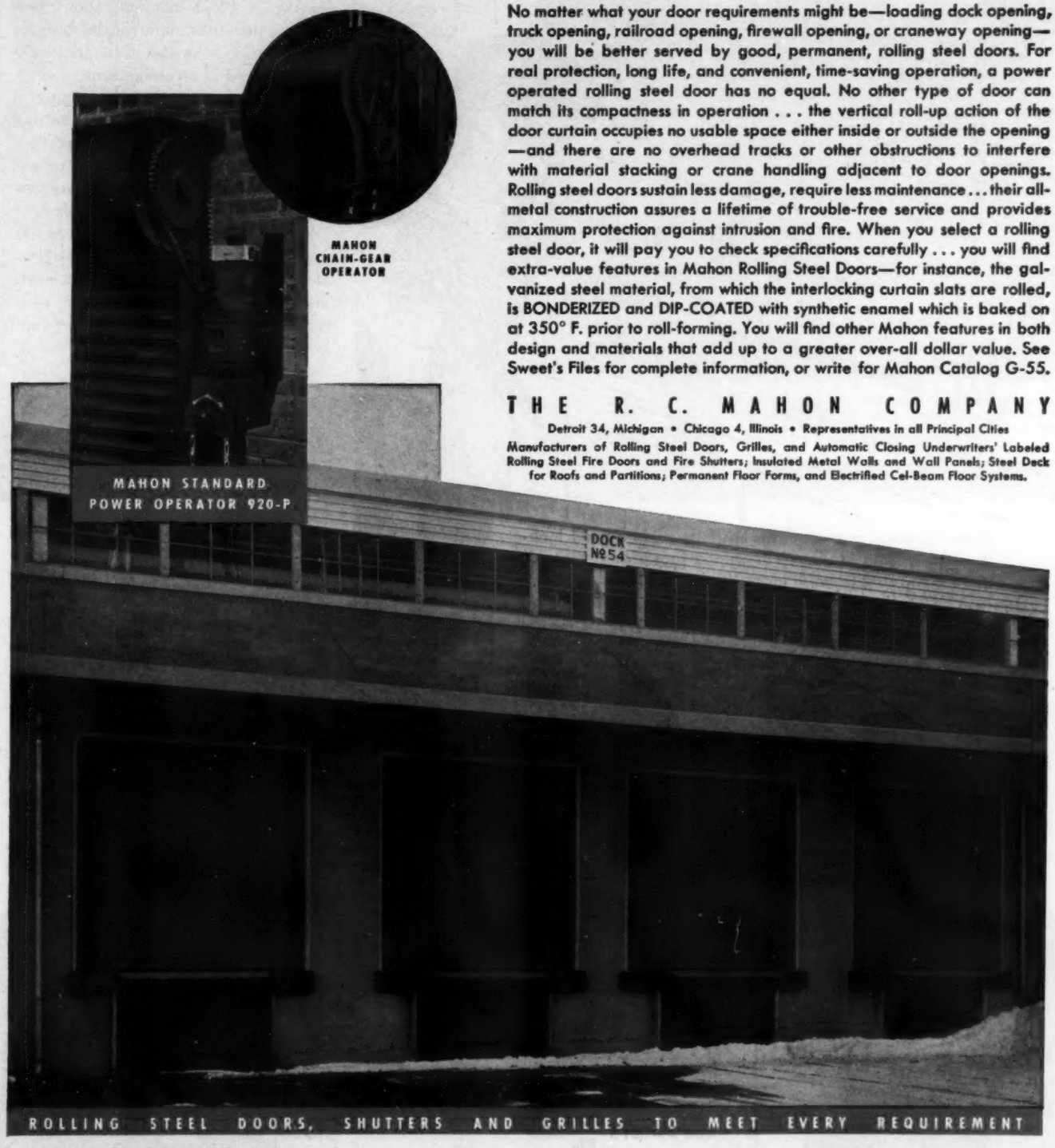
Manually, Mechanically, or Electrically Operated

No matter what your door requirements might be—loading dock opening, truck opening, railroad opening, firewall opening, or craneway opening—you will be better served by good, permanent, rolling steel doors. For real protection, long life, and convenient, time-saving operation, a power operated rolling steel door has no equal. No other type of door can match its compactness in operation . . . the vertical roll-up action of the door curtain occupies no usable space either inside or outside the opening —and there are no overhead tracks or other obstructions to interfere with material stacking or crane handling adjacent to door openings. Rolling steel doors sustain less damage, require less maintenance . . . their all-metal construction assures a lifetime of trouble-free service and provides maximum protection against intrusion and fire. When you select a rolling steel door, it will pay you to check specifications carefully . . . you will find extra-value features in Mahon Rolling Steel Doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is BONDERIZED and DIP-COATED with synthetic enamel which is baked on at 350° F. prior to roll-forming. You will find other Mahon features in both design and materials that add up to a greater over-all dollar value. See Sweet's Files for complete information, or write for Mahon Catalog G-55.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs and Partitions; Permanent Floor Forms, and Electrified Cel-Beam Floor Systems.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

Four Mahon Power Operated Rolling Steel Doors installed in a loading dock with mechanical floor levelers in each opening. A total of thirty-nine Mahon Rolling Steel Doors were installed in various types of openings in this new Sutherland Paper Co. Plant, Kalamazoo, Mich. Miller-Davis Co., Designers and Gen. Contrs.

MAHON

ELKAY Lustertone

STAINLESS STEEL SINK BOWLS

GO TO SCHOOL TO STAY!

These lustrous, easy-to-clean bowls provide a good looking, permanent installation in counter tops of any material. Bowl illustrated is available with one side ledge, two side ledges, or side and back ledge—serves dual purpose of sink and drinking fountain. ELKAY *Lustertone* never needs replacing—saves on cleaning and maintenance—stays bright and lustrous for class after class, year after year. School boards and teachers alike will *always* be happy with a *Lustertone* installation.

ELKAY *Lustertone* SINK BOWLS come in a wide range of sizes—single, double and triple bowl models—find innumerable uses throughout the school . . . kitchens, clubrooms, laboratories, domestic science classrooms . . . are completely seamless for utmost sanitation. SINK AND TRAY combination gives advantage of large bowl for dishwashing . . . small bowl for hand washing and rinsing . . . makes a wonderful sink for kindergarten clean-up use. Modern DRINKING FOUNTAIN is another fine application of ELKAY Stainless Steel in schools.

See Sweet's 23b Elk

or write for complete information

ELKAY MANUFACTURING COMPANY

1874 South 54th Ave., Chicago 50, Illinois

REQUIRED READING

(Continued from page 46)

Members of our office have spent days and nights in airport control towers and weeks on a destroyer during maneuvers. We ride in submarines and jet planes. . . ." This paragraph in *Designing for People* not only shows how exciting the life of an industrial designer is but also gives an idea of the thoroughness involved in an assignment.

Aside from the general outlining of the profession and his own contributions to it, the real meat in Mr. Dreyfuss' book lies in his theories on taste and the relation of good design and function.

It is his belief that most people have inherent good taste and, if given the opportunity, will use it. He also goes along with the theory that man achieves his tallest measure of serenity when surrounded by beauty. Science and industry have made it possible for almost everyone in the United States to have the necessary comforts of life — it is up to the industrial designers to make these things of beauty as well as a joy to use. This is quite a challenge for any one group but Henry Dreyfuss believes it can be done with well designed and maintained equipment — and he has proved it.

He is pessimistic when it comes to the contemporary automobile from Detroit. "What Detroit purveys in car design enormously influences trends in taste, far beyond the horizon of the automobile. . . . It may be successful — but it is still bad design." He is not alone in this thought.

But the results of designs for other machinery are more encouraging and more beautiful. Illustrations of examples (before and after) are plentiful.

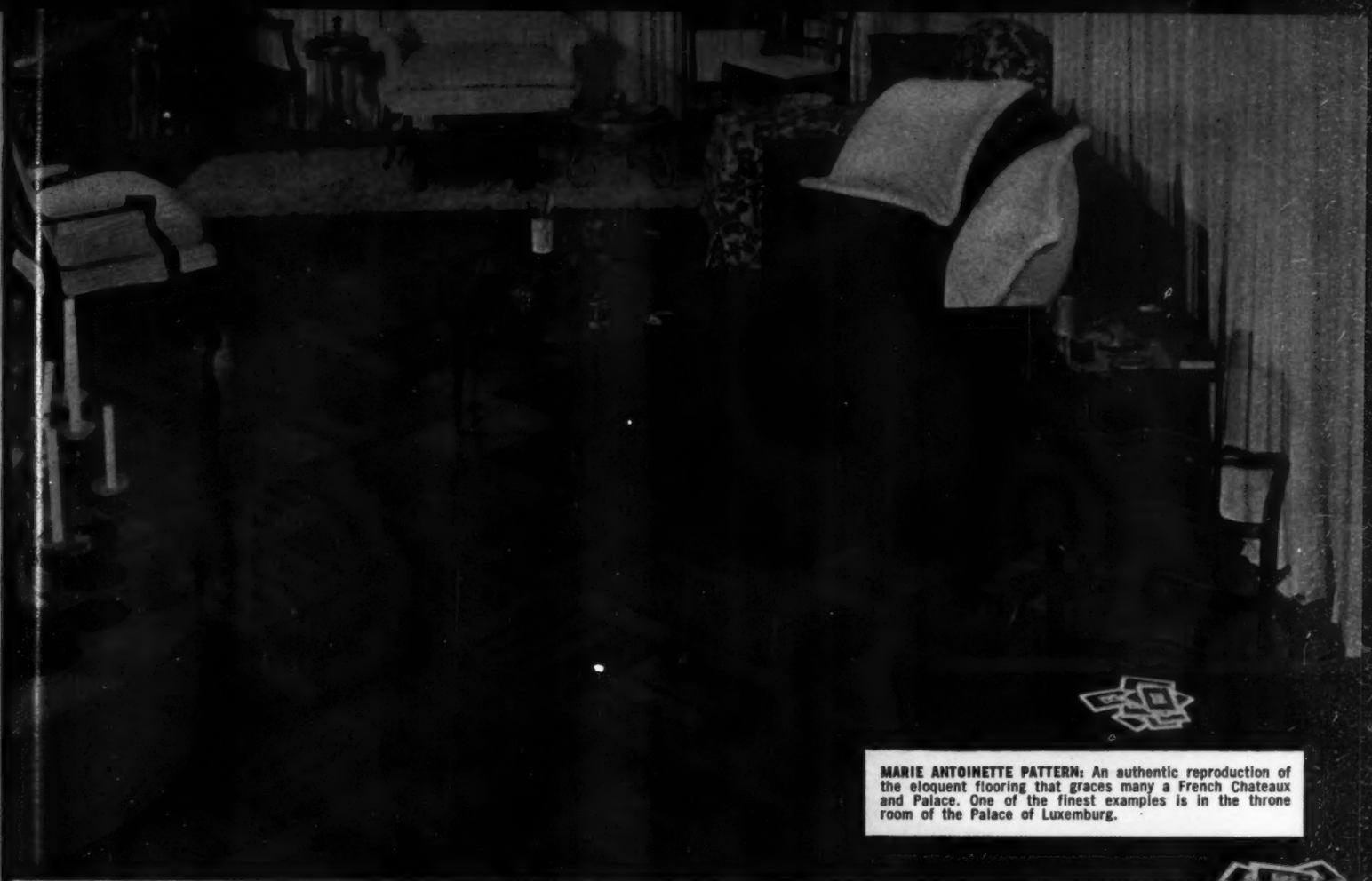
Mr. Dreyfuss may add journalism to his list of talents and successes. This is a well written book — full of information about a related profession — containing its measure of humor as well as interesting facts.

A LOOK TO THE FUTURE

Solar Energy Research. Edited by Farrington Daniels and John A. Duffie. The U. of Wis. Press (Madison, Wis.) 1955. 290 pp, illus. $4.00

This book spotlights present achievements and expected advancements in solar energy research and in its text and bibliography provides some of the help which scientists, engineers and inventors need as a basis to advance fundamental knowledge in unpredictable directions.

(More books on page 334)



MARIE ANTOINETTE PATTERN: An authentic reproduction of the eloquent flooring that graces many a French Chateaux and Palace. One of the finest examples is in the throne room of the Palace of Luxemburg.

In the finer modern homes... the new trend is toward WOOD-MOSAIC PARQUETRY FLOORS

This is for the planner who believes beauty should spring from the house itself—as well as from its furnishings. It is in particular a recognition of the renewed interest in parquetry designed hardwood flooring. Perhaps you've noted the trend away from merely adequate flooring and wall-to-wall carpeting.

Exquisite patterns in lustrous hardwood flooring are now the focal point in many of today's finer modern homes, with smaller rugs simply for accent. Such floors, in parquetry designs, have been admired in great mansions for centuries. They cannot help but be admired in the homes you design today.

For three quarters of a century, Wood-Mosaic has skillfully reproduced World Renowned hardwood floors that portray the richness of color and intimate warmth so necessary for gracious living.

All Floors Available in a Variety of Woods

HADDON HALL PATTERN

Through research and skilled craftsmanship the basketweave design of the classic English Haddon Hall original has been faithfully reproduced.

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MONTICELLO PATTERN

Created from the flooring of Thomas Jefferson's beloved Monticello . . . the Old Dominion mansion which our Third President both planned and built in historic Virginia.

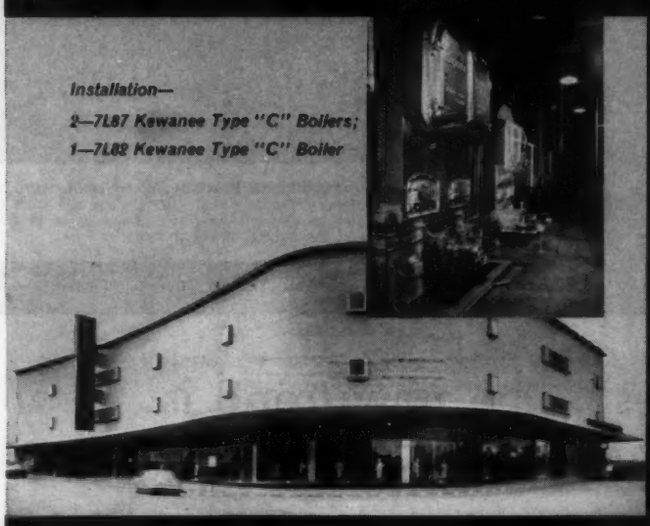
the Warmth of Wood

"Operating-Maintenance Costs Cut with Kewanee Boilers"

Noel Spannagel, Chief Engineer, Famous-Barr Company

Installation—
2—7L89 Kewanee Type "C" Boilers

Heating Contractor: Eichler Company; Architect: P. J. Hoerner; Engineer: John D. Falsey



Installation—
2—7L87 Kewanee Type "C" Boilers;
1—7L82 Kewanee Type "C" Boiler

Heating Contractor: Eichler Company; Architect: Mitchell Edwards Van Houten; Engineer: John D. Falsey

Installation—
2—490 Kewanee Firebox Boilers;
2—324 Kewanee Firebox Boilers;
1—308 Kewanee Firebox Boiler

Heating Contractor: Eichler Company; Architect: Will Terry

KEWANEE reserve plus rated boilers

...PREFERRED BY FAMOUS-BARR FOR OVER 1/4 CENTURY

Back in 1928 the Famous-Barr Company, St. Louis, installed 2 Kewanee Stoker Fired Boilers in a warehouse . . . so began an experience with Kewanee Boilers that has extended over the past quarter century. As they expanded, as new buildings called for more power, Kewanee was the preferred boiler installation every time. But let Noel Spannagel, Famous-Barr's chief engineer, tell the story:

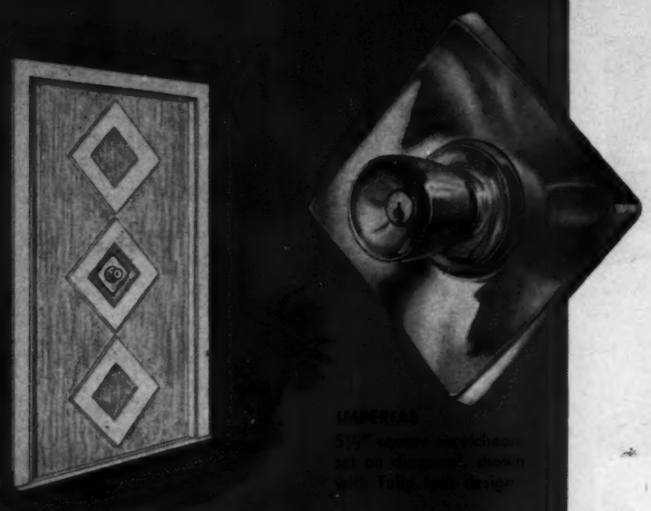
"My previous experience proved Kewanee offered important savings in operating and maintenance as compared with other boilers." Famous-Barr long has known the advantages assured by Kewanee Reserve Plus Rated Boilers such as provision for expansion—"cruising speed" operation which lowers operating and maintenance costs and lengthens boiler life. So when you consider boilers, be sure they are rated on nominal capacity to operate at "cruising speed."

Don't be misled by promises that a boiler delivers steam to meet average daily requirements. Only a boiler rated on nominal capacity can guarantee performance beyond the call of usual duty.

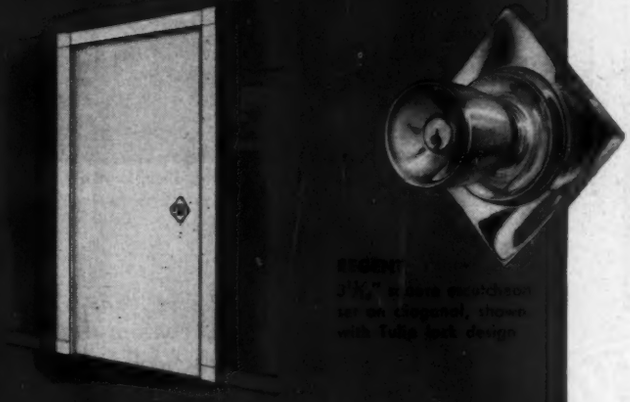
YOU can depend on KEWANEE engineering

SCHLAGE *Design Originality*

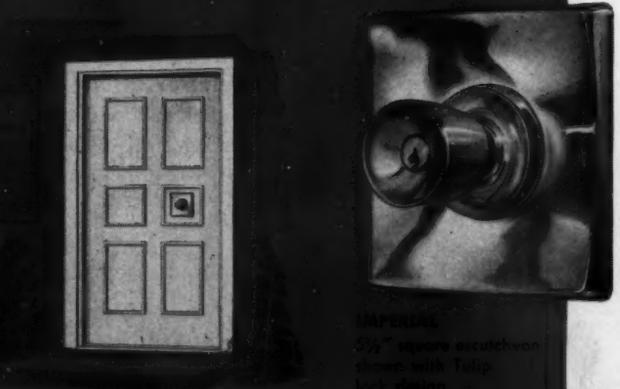
DRESSES UP DOORWAYS



IMPERIAL
5½" square escutcheon set on diagonal, shown with Tulip lock design



REGENT
3½" square escutcheon set on diagonal, shown with Tulip lock design



IMPERIAL
5½" square escutcheon shown with Tulip lock design

The Imperial and Regent escutcheons are available in wrought brass, bronze or aluminum, in all standard finishes . . . can be used with a wide variety of Schlage lock designs.

The distinctive square Imperial escutcheon is **more** than just a new design. Combined with its smaller companion, the Regent, it introduces an original lock design concept in door decor — matching motifs you can establish throughout your homes. And it gives you — together with Schlage's round escutcheons — an even wider range of novel entranceway effects . . . lets you feature Schlage quality and beauty at a cost well within the limits of a modest building budget.

ORIGINAL . . .

When placed on the diagonal, the Imperial presents a dramatically different diamond effect . . . welcome variety without added expense for the volume builder . . . another example of tasteful originality in door decor made possible by these advanced escutcheon designs.

VERSATILE . . .

The smart distinction of the Imperial can now be repeated on interior doors with the smaller Regent . . . adding a new note of beauty to interior styling . . . protecting the door surface from unsightly scratches.

DISTINCTIVE . . .

In a square setting, the beautiful new Imperial escutcheon forms a striking concave background for Schlage locks . . . adds just the right touch of distinction to entranceways. And, with Schlage's original long backset feature, greater freedom of lock placement creates even more possibilities for original doorway styling.

SCHLAGE ESCUTCHEONS . . . for the favorable first impression that helps sell discriminating home buyers.

***Send for* "NEW DESIGNS" FOLDER No. 626-A-7**

This new folder suggests many refreshing ways to feature door decor . . . incorporating Schlage's five beautiful new lock and escutcheon designs. Fully illustrated, with complete specifications.

SCHLAGE

SCHLAGE LOCK COMPANY

SAN FRANCISCO • NEW YORK • VANCOUVER, CANADA

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Kitchen arrangement and decoration duplicates home conditions, facilitates transition from class training to home work.

North East High School, Lincoln, Nebraska Equips New Cooking and Clothing Laboratories in St. Charles Custom-Built Steel

Individual kitchen units may be employed simultaneously, in class participation, or individually, for special assignments.

Wardrobe units and tote tray storage make maximum use of wall space, in sewing center.

Interesting application of open-front shelving to provide reference library storage.

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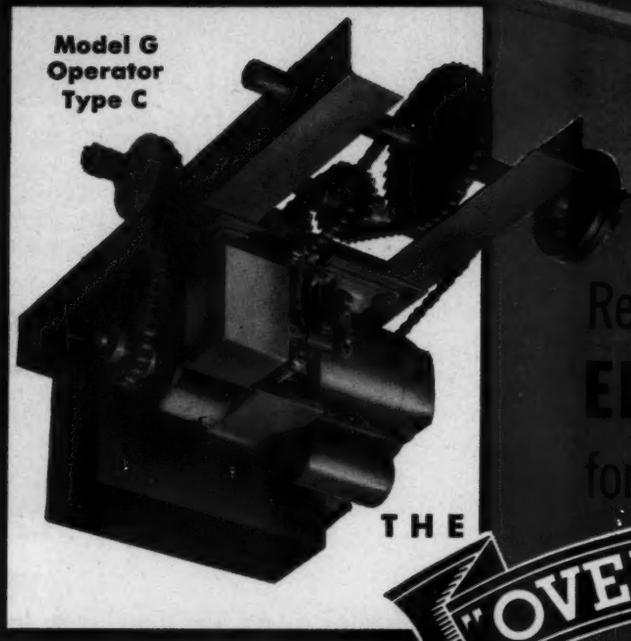
Send for your free copy of "Education for Living," a recently published study of St. Charles products and their application to the homemaking classroom. Write

***St. Charles* CUSTOM EQUIPMENT**

For the homemaking classroom • For the home kitchen

ST. CHARLES MANUFACTURING CO. • Dept. AR • St. Charles, Illinois



Revolutionary New Line of
ELECTRIC OPERATORS
for . . .
THE
"OVERHEAD DOOR"
TRADE MARK
Residential • Commercial • Industrial

Designed for easy installation, low maintenance cost. Electrical controls housed in one easily accessible box. 24-volt control circuits cut installation cost, eliminate hazards of high voltage. All models easily adaptable to time-saving electronic control.

Traditionally builders of the finest sectional, upward-acting doors, Overhead Door Corporation has a heritage of sound experience in the field of electric operators and control systems, dating back to the days when each operator was built by hand. Today, this cumulative experience has been combined with fresh ideas and intensive research to produce a new line of electric operators for every commercial and industrial need. Take full advantage of it—make every building more modern with electrically-operated doors.

Write For Specification Folder on All Models

America's Great Name in
QUALITY DOORS...

OVERHEAD DOOR CORPORATION
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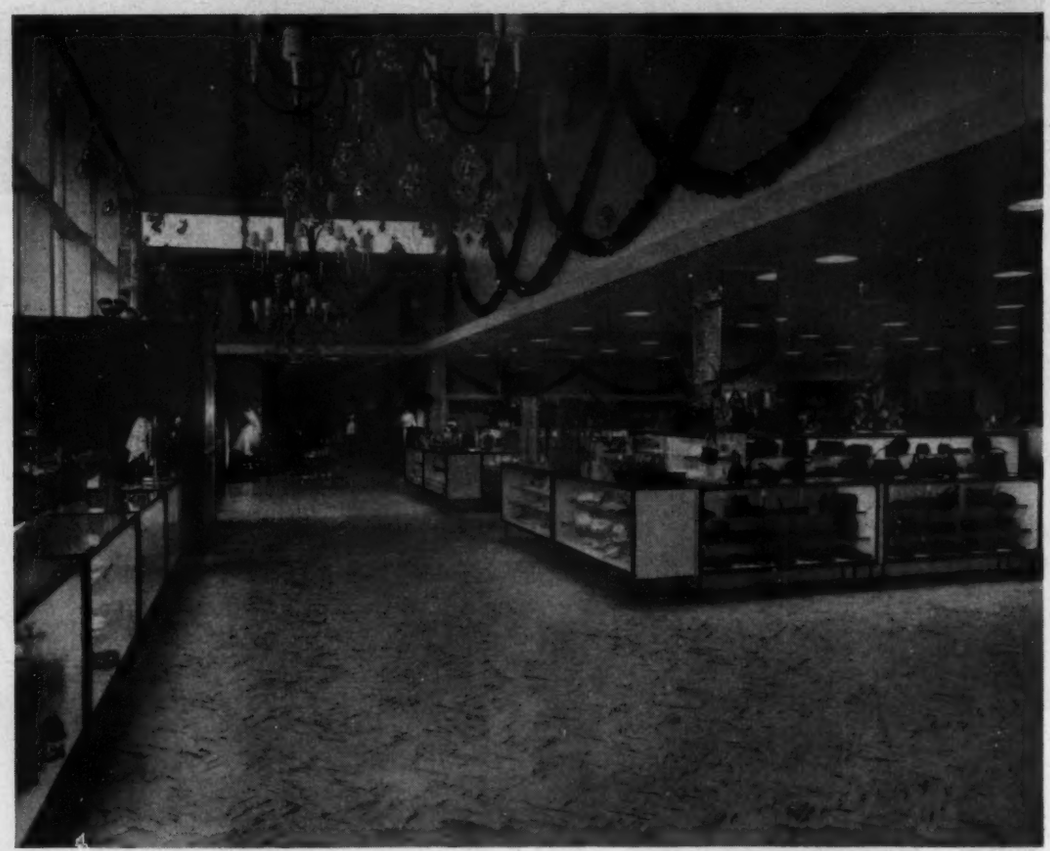
Hillside, N. J. Hudson, N. H. Oklahoma City, Okla. Portland, Ore.

Vina-Lux floors..fashioned for fifth avenue



Sak's Fifth Avenue, White Plains, New York • Kahn & Jacobs, Architects, New York City, N. Y.

Upper bracket stores throughout the country are finding Vina-Lux Reinforced Vinyl Tile the perfect answer to their flooring problems. Its beauty of color, smooth, easy-to-clean surface, and foot-safe resilience qualify it without question as a superior sales back-drop for top-level merchandise.

Vina-Lux matches its own brilliant beauty with outstanding performance day-in and day-out. Regular cleaning and dry buffing enhance its lustrous built-in surface . . .without the use of costly waxes or floor finishes. Customers like its sure-footed comfort . . . and sales clerks find a welcome lessening of leg and foot fatigue at the end of the day's work.

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Like Lifetime Protection?

GET NE Sherarduct
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Sherarduct Rigid Steel Conduit gives you lifetime protection against corrosion. Here's why:

First, NE's Sherardizing process of dry galvanizing alloys pure zinc with the conduit walls, fortifies the steel against rust and corrosion permanently. Second, Shera-enamel, a special, baked-on coating, further protects the conduit from acids and other corrosives.

This double corrosion protection covers the entire surface — inside and out, including the hills and valleys of every thread.

And there are other Sherarduct advantages:

Easy fishing for example . . . in addition to a smooth inside surface, Sherarduct's accurately cut threads let conduit ends butt inside the coupling . . . eliminate gaps that increase friction.

Sherardizing normalizes the conduit metal by gradual heating and cooling in an annealing-like process. This means easy bending and forming on the job.

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LIFETIME CORROSION PROTECTION
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THOROUGH GROUNDING
•
EASY BENDING

Listed by Underwriters' Laboratories, Inc.

Sherardizing is galvanizing at its best . . . Sherarduct is galvanized conduit at its best

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lets you make changes on tracings . . .

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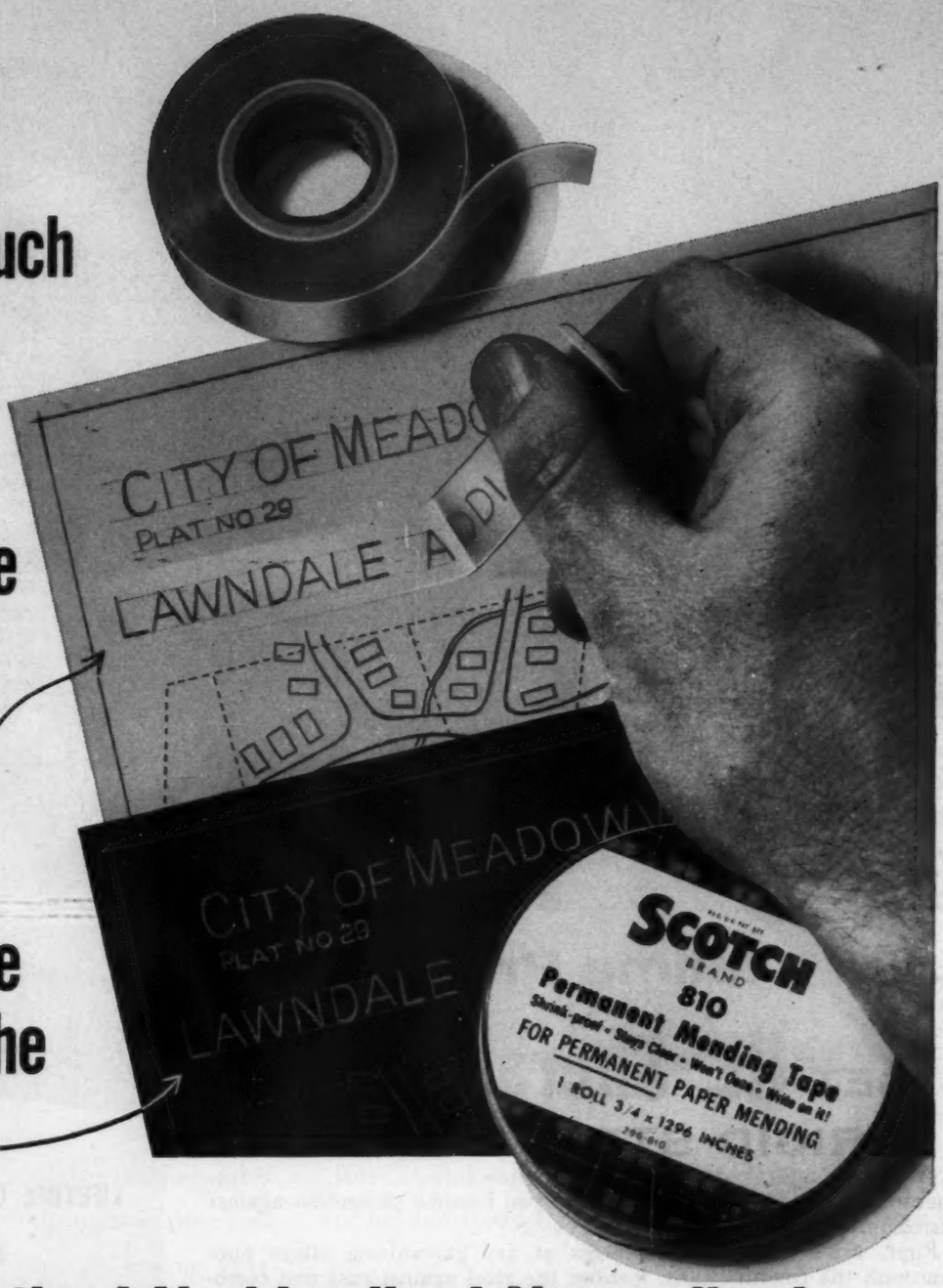

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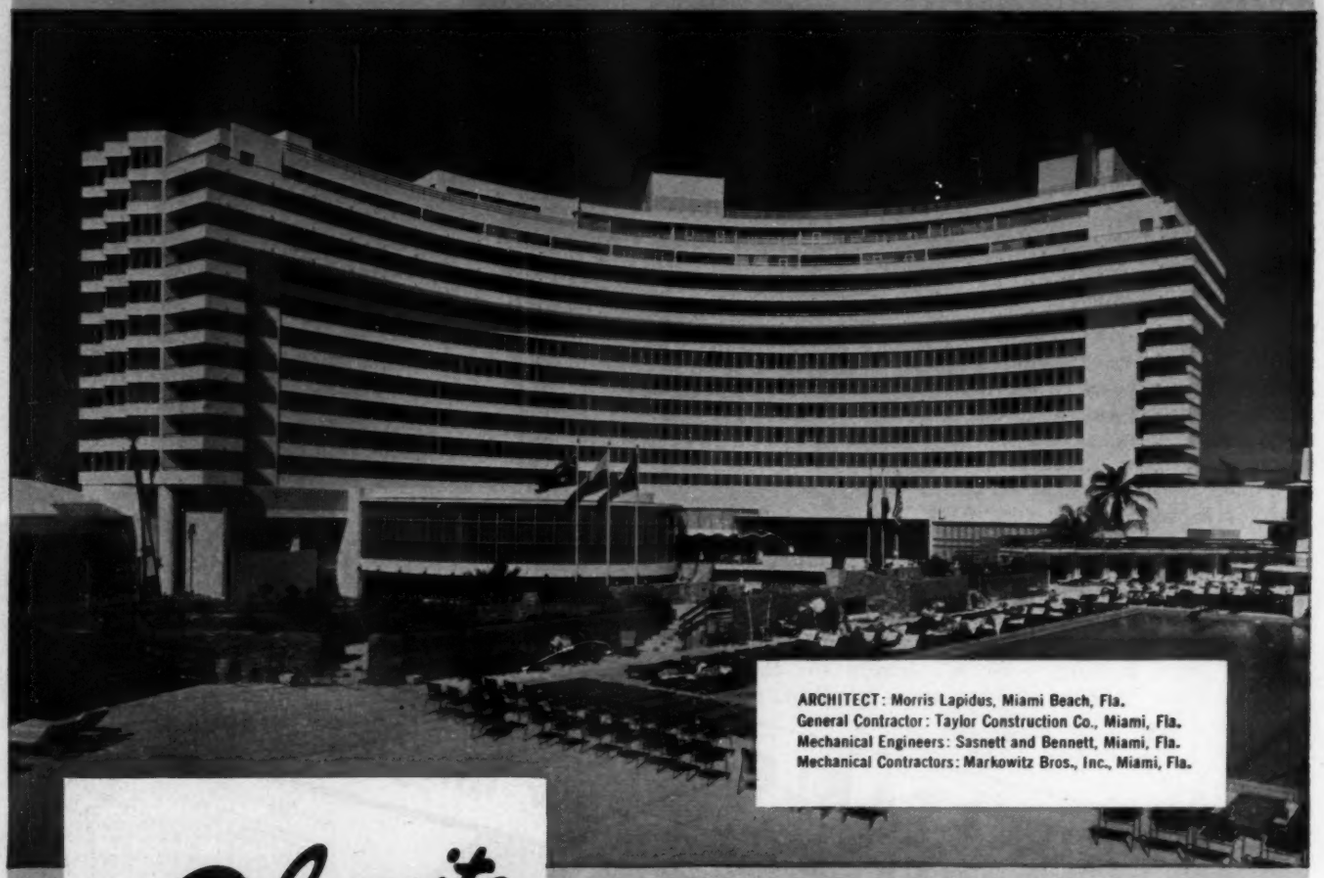
3M

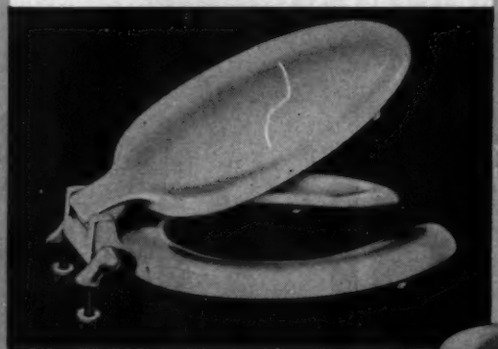
Throughout one of the World's newest and most luxurious hotels

The Fontainebleau MIAMI BEACH, FLORIDA



ARCHITECT: Morris Lapidus, Miami Beach, Fla.
General Contractor: Taylor Construction Co., Miami, Fla.
Mechanical Engineers: Sasnett and Bennett, Miami, Fla.
Mechanical Contractors: Markowitz Bros., Inc., Miami, Fla.

SOLID *Olsonite* SEATS



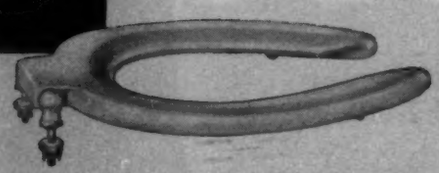
Olsonite model No. 56 Solid color seats were installed throughout the Fontainebleau Hotel.

For every deluxe and standard bathroom throughout Miami Beach's new Fontainebleau Hotel—one of the world's most fabulous—Solid Olsonite Seats were specified and installed.

Olsonite No. 56 open front seats with cover were specified in a variety of plain colors to match the pottery of the colorfully appointed bathrooms. Like all Olsonite seats, these plain color models are solid one-piece construction. There's no sheet covering or applied finish of any kind to crack, chip or peel.

Selection of Olsonite for the Fontainebleau is another indication of Olsonite's ever increasing popularity. Equally popular for hotels are Olsonite *white seats* both with and without cover. Unlike ordinary white seats, they will not fade or discolor even after years of use.

For a complete catalog of all Olsonite models, please write on your letterhead.



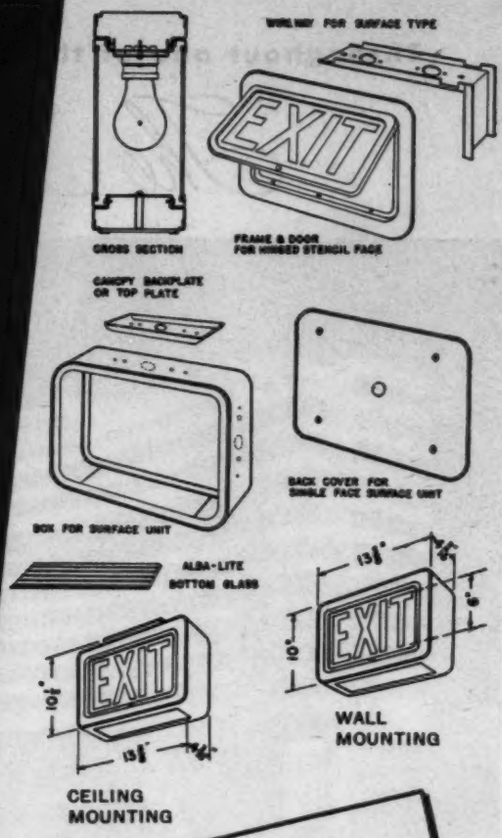
Olsonite models 5 and 10 (both with and without concealed check hinge) are also ideal for hotel installations.

A-3-55

SWEDISH CRUCIBLE STEEL CO. *(Plastics Division)* **8561 Butler Avenue, Detroit 11, Michigan**

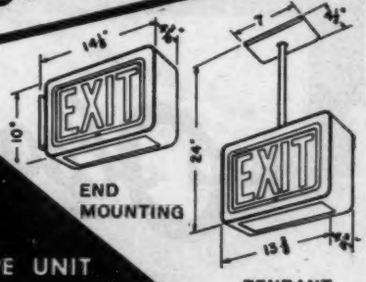
SURFACE TYPE UNIT
STENCIL FACE STYLE

Now it's possible to use one basic die-formed exit sign throughout an entire building. Quickly converted to single or double face use, The Perfeclite Surface Unit, is mounted from top, back, side, or from a pendant, depending on your requirements. Wiring is no problem. The wireway simply disengages through key slots. Two face styles available: hinged metal stencil face, 6″ letters on fired green or red glass backing — or 6″ letters on fired ceramic glass panel — in four color combinations.



ADAPTABLE — is the word for PERFECLITE'S new hinged exit unit

Specify Perfeclite Recessed Mounted Illuminated Exit Signs . . . die-formed, easy-to-install, easy-to-service. Two face styles: hinged metal stencil face, 6″ letters on fired green or red glass backing, or 6″ letters on fired ceramic glass panel — in four color combinations.



RECESSED TYPE UNIT
GLASS FACE STYLE

All signs are fired ceramic colors — unconditionally guaranteed. *Units are Underwriters Laboratories, Inc., approved, and comply with National Electrical Code.*

PERFECLITE PRODUCTS — THE MARK OF LIGHTING SERVICE

THE PERFECLITE COMPANY
1457 East 40th Street
Cleveland 3, Ohio

Please send me The Perfeclite Data Folder EX-55A.

NAME.....

ADDRESS.....

CITY. .....STATE.....

FUNCTIONALLY *beautiful*
beautifully **FUNCTIONAL**

WAYNE GYMNASIUM SEATING

The idea may startle you—but *nothing* adds more to the appearance of a gymnasium than *attractive seating!* Especially Wayne Rolling Gymstands. These easy-rolling, handsome units are *architecturally designed* to bring you the utmost in lasting good looks and dependable performance. Fine finishing gives carefully selected wood an unsurpassed mellow richness. Fully closed risers assure foot safety and better appearance. Completely vertical front when closed makes Gymstands smart and neat. Exclusive alignment frames insure freedom from jamming, permit smooth, easy opening and closing. No sag, no sway—Wayne Gymstands meet all and exceed most grandstand safety codes and regulations. Provide maximum visibility, too.

WAYNE

WAYNE IRON WORKS • WAYNE, PENNSYLVANIA

Get Wayne's Rolling Gymstand Catalog No. R-54. Just write on your letterhead.

BARBER COLMAN

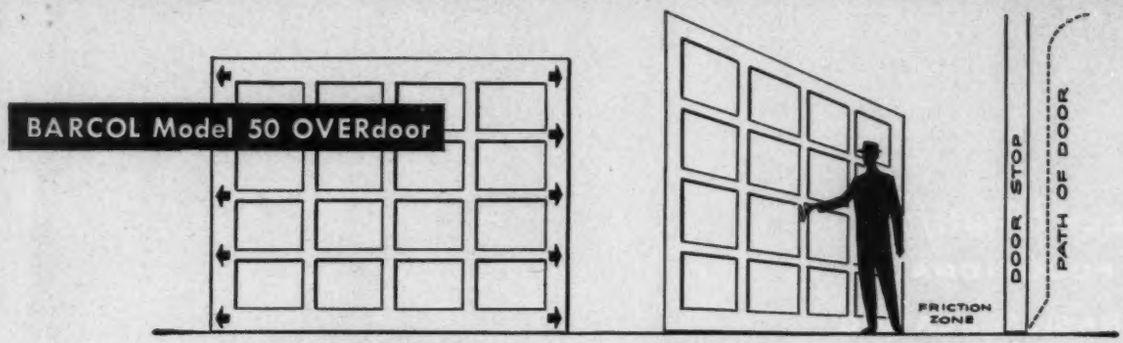
Barcol® OVERdoors

close tighter, yet open easier!

Barcol CAM ACTION OVERdoors close tighter because door rolls easily down with ⅜" clearance and then is pushed forward by cam levers and held firmly and evenly against door stops. No wedging . . . no dragging . . . no scraping.

Barcol CAM ACTION OVERdoors open easier, at a turn of the latch handle, because *extra* Cam Springs at bottom pull entire door ⅜" *back* from stops—overhead springs then lift friction-free door upward. Friction zone (see below) is reduced to a minimum, allowing wood to swell in damp weather without sticking, binding, or wedging.

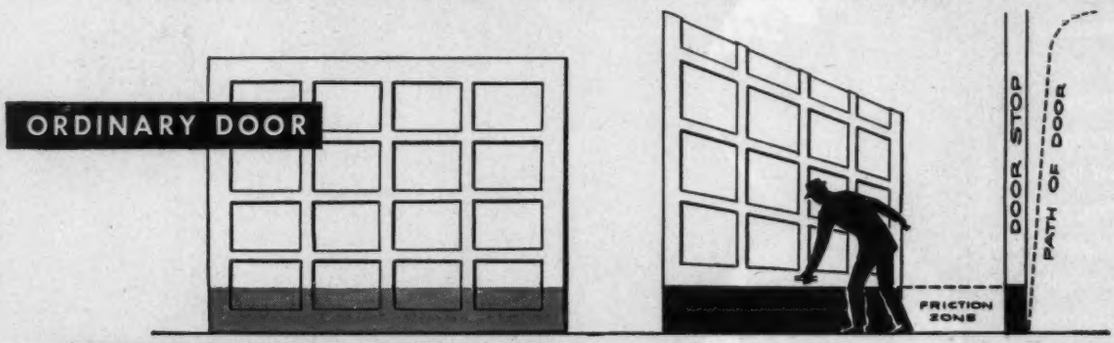
THE IMPROVED OVERHEAD DOOR . . . CAM ACTION'S THE REASON!

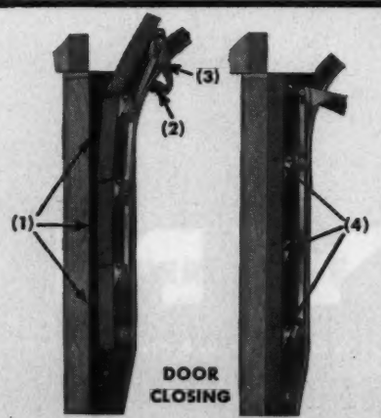


CLOSING: Door *first* closes free of stops; then cam levers press door against stops.

OPENING: Cam levers immediately free entire door from stops; friction zone is less than 1 inch!

No dragging or wedging to close weather-tight and rattle-proof. No stooping, no pulling through *long* friction zone to open.





SEE HOW CAM ACTION WORKS!

(1) Uniform ⅜" clearance assures all-weather friction-free opening and closing. Stop (2) engages cam lever (3) linked to other cam levers (4) pushing all door sections simultaneously against stop strips.

Only Barber-Colman OVERdoors give you all three—

CAM ACTION releases immediately for easy opening even when door swells—yet closes weather-tight and rattle-proof even when door shrinks.

WEATHER-KING PANELS—guaranteed for life not to weathercheck, split, crack, or delaminate.

INDIVIDUALIZED DESIGN—new Doornaments make standard doors into custom designs at only fractional extra cost. For free design service, call your Barber-Colman distributor (under "Doors" in phone book), or write:

Barber-Colman Company

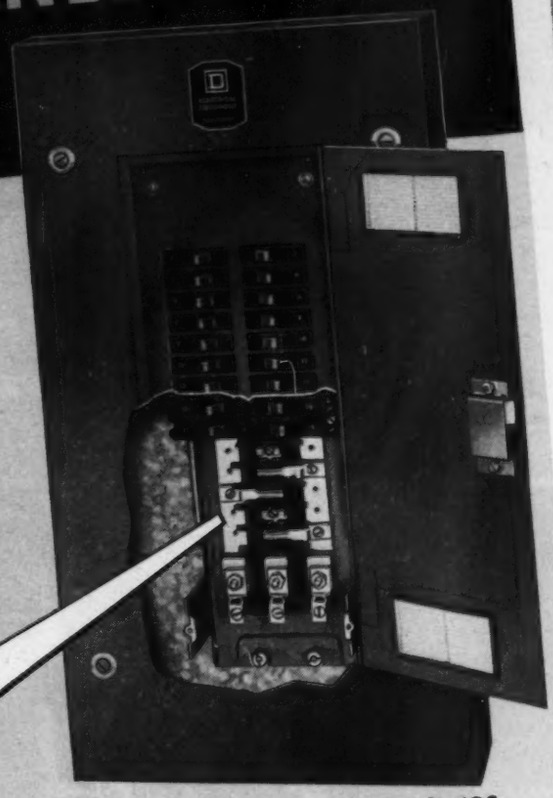
Dept. P57, Rockford, Illinois

WARDROBEdoors • Automatic Controls • Industrial Instruments
Air Distribution Products • Aircraft Controls • Small Motors • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

Terrific!

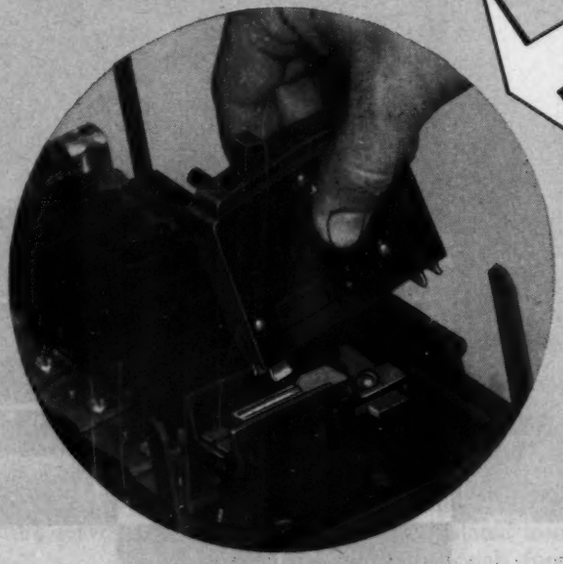
NQO LIGHTING PANELBOARD

with QO... FINEST BREAKER EVER BUILT!



...Get the complete line "Off-the-Shelf" from your Electrical Distributor or have assembled panels shipped right to the job

It's a top quality line throughout! Note the compact, streamlined beauty. A closer look reveals such outstanding features as: Distributed phase bus arrangement with clear identification for simplified load balancing. Adjustable, indicating trim clamps. Galvanized box with large gutters for real accessibility, yet compact enough to mount between 16" wall studs. Most important of all—the new NQO panelboard offers you the finest breaker ever built, with exclusive **SWINGRIP** mounting.



NEW QO BREAKER with Exclusive SWINGRIP mounting

No other breaker has all these features which make QO the finest breaker ever built!

- Plug-In for maximum flexibility as well as ease of installation and maintenance.
- Quick-make, quick-break mechanism provides positive operation, has excellent "feel". Assures positive operation and long life under all circuit switching conditions.
- Compensated thermal trip enables breaker to carry full allowable load under varying ambient temperatures.
- Sensitive calibrated magnetic trip assures quick and consistent response to harmful overloads or short circuits.
- Non-interchangeable design discourages the use of 30, 40 and 50 ampere units where 15 or 20 ampere breakers have been installed.
- Trip indication on overload or short. Handle moves to middle position.
- Positive action of handle against contact members guarantees circuit opening.
- Compact design—¾" width for each pole conserves valuable space.
- Exclusive **SWINGRIP** mounting provides easier installation, automatic alignment, positive contact with bus bars.

ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS

SQUARE D COMPANY

The $2,085,000 Hunterdon County Medical Center is a rural health center with big city facilities.

To help cut costs and obtain greater freedom in design, Architect Kling used a reinforced concrete frame, with 8" flat plate floors. This method of construction required no beams, which enabled him to hold story heights to 9'-9". It also simplified duct work, eliminated ceiling plastering, and permitted varying the column spacing to meet different plan requirements. As a result, construction costs were held to $1.99 per cubic foot compared with a regional average of $2.25.

On your next job, take advantage of local labor and materials . . . faster starts and erection time . . . inherent firesafety . . . ruggedness . . . and of course, lower costs. Design for reinforced concrete!

REINFORCED CONCRETE

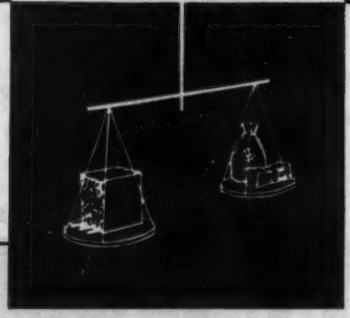
provides design freedom... cuts cubage and costs

Hunterdon Medical Center
Flemington, New Jersey
(Received 1951 Award of Merit, New Jersey Society of Architects.)

Vincent G. Kling, A.I.A., Phila., Pa.
Architect

Severud, Elstad & Krueger
Structural Engineers

Nason & Cullen
General Contractors



Compare...

YOU'LL SAVE WITH REINFORCED CONCRETE

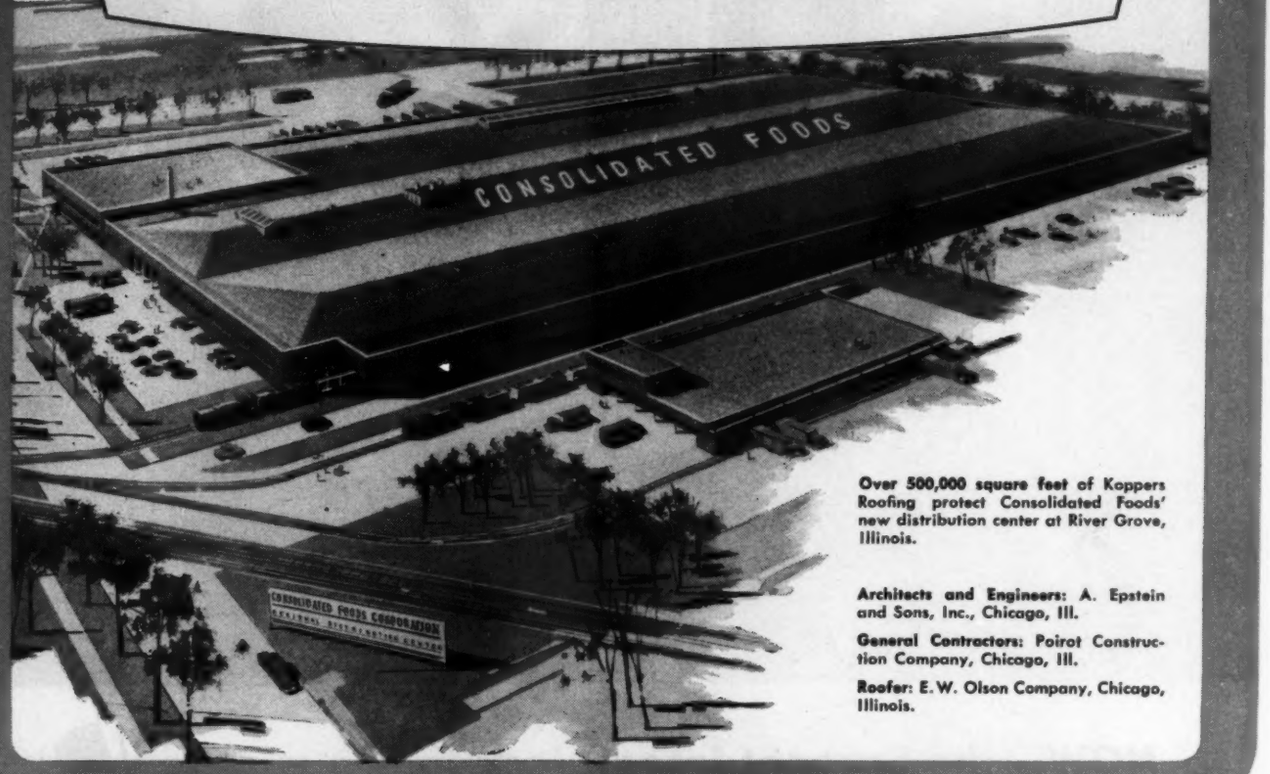
CRSI

38 South Dearborn Street • Chicago 3, Illinois

CONCRETE REINFORCING STEEL INSTITUTE

Protection for Perishables!

Koppers Roof provides watertight protection for giant new food center



Over 500,000 square feet of Koppers Roofing protect Consolidated Foods' new distribution center at River Grove, Illinois.

Architects and Engineers: A. Epstein and Sons, Inc., Chicago, Ill.

General Contractors: Poirot Construction Company, Chicago, Ill.

Roofer: E. W. Olson Company, Chicago, Illinois.

HERE is a new food center, recently opened by Consolidated Foods Corporation at River Grove, Illinois. Located only 12 miles from Chicago's Loop, this impressive structure serves as the corporation's distributing and processing center for the entire middle west.

Consolidated Foods Center covers about 13 acres. It has a normal inventory of 725 carloads of food. Translated into terms of meals, this is enough food to feed 1,000,000 people for 12 days.

These thousands of tons of food, much of it perishable, are protected by 5,113 squares of Koppers Pitch and Felt Roofing. Thanks to the waterproofing properties of coal-tar pitch, this warehouse is watertight and will *stay* watertight.

Many Koppers Built-Up Roofs have been protecting buildings and contents for more than 30 years. Get this same effective protection for your next industrial, commercial or residential building. Full information is available on request, or see our specifications in Section 7a—Sweet's Architectural File.

see our catalog in ARCHITECTURAL FILE or write for copy

KOPPERS®

KOPPERS COMPANY, INC. • Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALABAMA

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NOW...the Sargent Integralock in

STAINLESS STEEL!

The answer to owners' demands for permanence and beauty

Sargent has done it! Leads the field again! Gives you the already famous Integralock . . . *in a shining armor of stainless steel!*

This gives you the lock you need to blend with modern stainless steel trim. The stainless steel knobs and escutcheons do not require polishing—a real operating economy. The hard, durable alloy resists dents and mars for a lifetime of lasting beauty. Available in polished or satin surface at standard Integralock prices.

All that . . . *and* all the famous Sargent Integralock features, too! The exclusive, patented Sentry Bolt, positioned *horizontally* for more security. *Plus* locking set stops . . . key-in-knob convenience.

Call your Sargent representative! Be one of the first to see the Integralock... in *stainless steel*. Or write Sargent direct for complete information. Dept. 7-G.

SARGENT & COMPANY

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SARGENT of New Haven

NEW IMPROVED

Air Grille

CURVED HEMMED FINS GIVE 80% FREE AREA

designed by TITUS

Large free area means the Titus Return Air Grilles HANDLE MORE AIR PER SQUARE INCH. Makes it possible for a smaller grille to give superior performance... at lowest cost... and correct performance faults of other parts of an air conditioning or heating system... at the same time.

NEW BEAUTY

Matches design of supply grilles. Curved outline of fins add beauty... at the same time make it easy for maintenance personnel to keep grilles clean.

ONE-PIECE ASSEMBLY... FOR ANY SIZE OPENING

This eliminates expensive labor of handling old-fashioned grilles that are made in sections. Cuts costs of fitting, butting and screwing together these sections. Brings labor and grille costs to a minimum.

MORE STRENGTH PER SQUARE INCH

The curved hemmed fin design adds rigidity and durability to resist lower wall abuse. There is no see-thru due to the special positioning of the fins.

Name

Company

Address

City

Excellence of color work in concrete materials begins with the whiteness of the cement used. This is true regardless of whether the color is to be achieved by exposed colored aggregates; or by the addition of pigments to the mix.

Use Trinity white for architectural concrete units; terrazzo; stucco, etc. It is the whitest white—gives better color effects. It is a true portland cement.

Meets all Federal & ASTM specifications

Trinity White

A Product of GENERAL PORTLAND CEMENT CO. • Chicago • Dallas • Chattanooga • Tampa • Los Angeles

Take a tip from the guy who knows:

FOR SCHOOL FLOORS THAT ABSORB ABUSE, *Specify* KREOLITE!

More and more architects, school boards and school executives are specifying Kreolite Flexible Strip End Grain Wood Block Flooring for school activity centers where floors really take a beating.

For only Kreolite combines the beauty of natural finish woods with the rugged durability of end grain construction to provide flooring that withstands the constant abuse common to school gymnasiums and vocational shops.

Resilient Kreolite is economical to install, easy to maintain.

You, too, can realize the benefits from this remarkable flooring material. Just fill out the coupon below.

KREOLITE FLEXIBLE STRIP END GRAIN WOOD BLOCK FLOORS

The Jennison-Wright Corp.

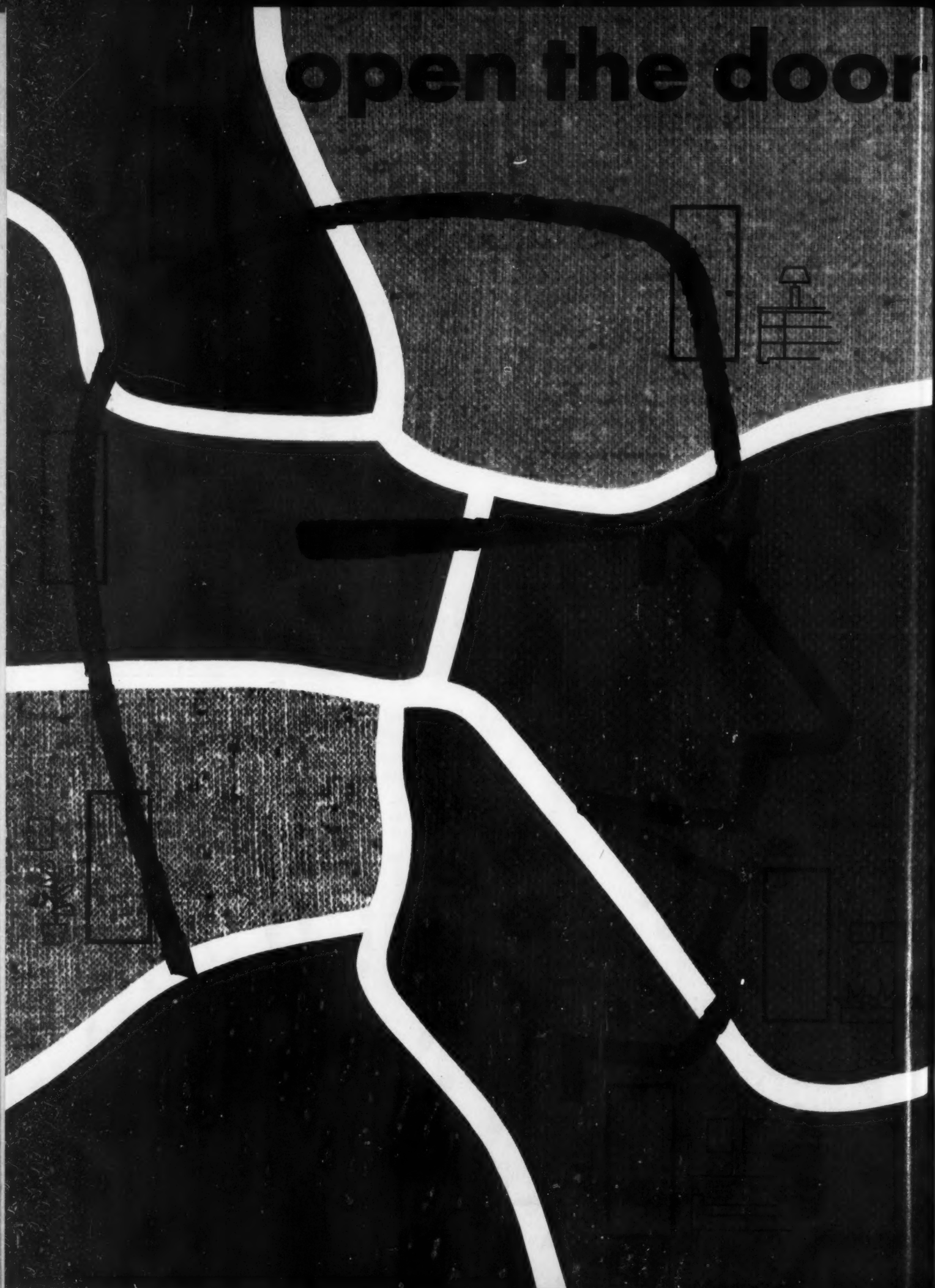
2463 Broadway
Toledo 9, Ohio

Please send me a free sample and complete specifications of Kreolite Flexible Strip End Grain Wood Block Flooring.

Name_____

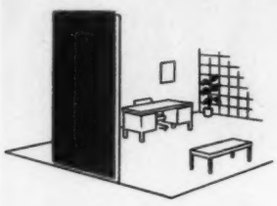
Address_____

City_____ State_____

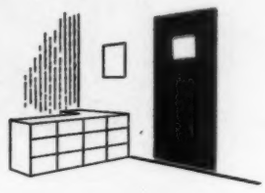

open the door

to your imagination

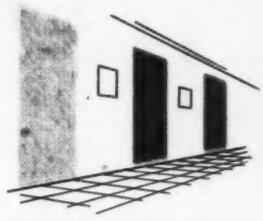
Never before has a door aroused the creative imagination of designers as has this new Kawneer door. Multiple colors and patterns provide a variety of original design opportunities.



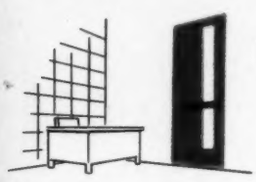
Tile red—Solid color with embossed leather-like appearance. Ideal for the regal-type design*.



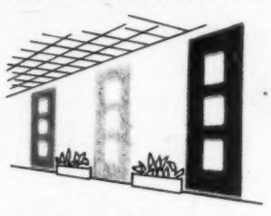
Sage green—Same texture as Tile Red. Blends easily with over-all design concept. Easy to style*.



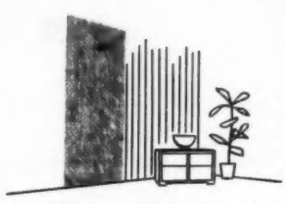
Jonquil yellow — Linen pattern in a bright, sunny color to liven dark locations. Simple to blend and match.



Olive green—Linen with a design-opportunity color. Brings Spring to any office or reception room.



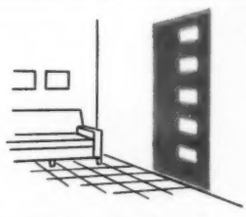
Flame red—Popular color with linen pattern to make any setting alive with interest and excitement.



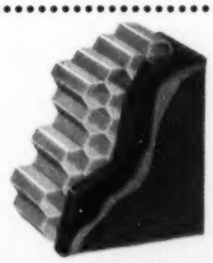
Salt & pepper—Easy to match, yet provides a smart atmosphere. In distinctive linen pattern.

The **Kawneer Touch** brings another new decorating opportunity

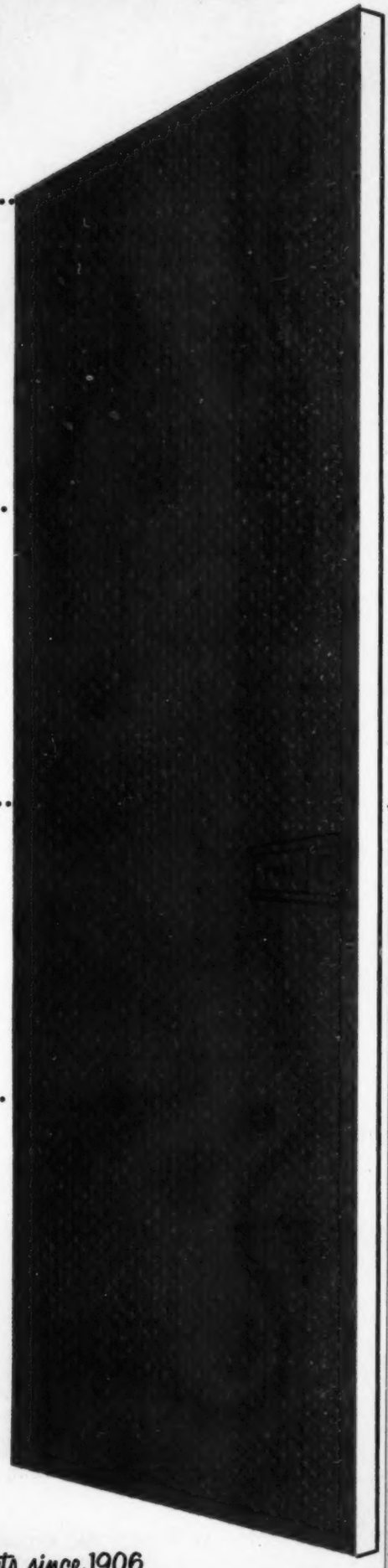
Now, for the first time, you can make a doorway functionally decorative. Permanent, scratch-resistant, vinyl plastic in color and texture, laminated to aluminum, hardboard and honeycomb gives you the maximum in durability and shock-resistance. For further details phone, wire or write Dept. FD, Kawneer, Niles, Michigan.



Smooth saddle tan—Perfect for the masculine expression. Has the appearance of rich saddle leather.



Cross-section of Kawneer honeycomb door showing complete lamination. Doors also available with ribbed aluminum skin only.



*Tested and proved for both indoor and outdoor use.

Kawneer
General Offices
NILES, MICHIGAN

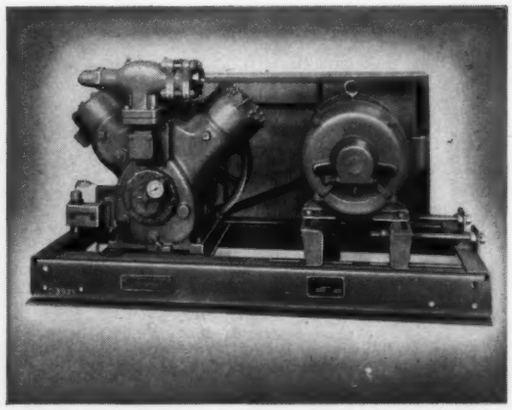
Pioneer in architectural products since 1906

Printed in U. S. A.

THE STERLING, MIAMI BEACH'S NEWEST ocean front hotel, enjoyed a banner first season last winter. Owner David Rosner assigns a good share of the credit to his Worthington-engineered air conditioning system which cools the 142 rooms and 186,000 cubic feet of dining and lobby space. "Maintenance service (routine checkups) couldn't be better," says Manager Sam Rosner, with an eye on the potential business losses (running into thousands of dollars) that might follow mechanical breakdown. System includes both central and packaged air conditioners.

Worthington teams central and packaged air conditioners to cool new Miami Beach hotel

3-TON, 7½-TON, AND 15-TON PACKAGED AIR CONDITIONERS with the famed Freon compressor like this serve as booster units to keep Sterling's crowded bar, television and card rooms cool without over-cooling other areas. Write for facts to Worthington Corporation, Air Conditioning and Refrigeration Div., Section A.5.66-R, Harrison, N. J.



BASIC AIR CONDITIONING UNIT for the Sterling Hotel is this 60-ton Worthington Freon compressor, end product of a million-dollar research program. Worthington equipment includes two Freon compressor units, three packaged air conditioners, and one shell and tube condenser. And Worthington's special cut-off system keeps power costs low when only minimum temperature changes are required. A. 5. 66

WORTHINGTON

Climate Engineers to Industry, Business and the Home

Specify the best. then Insist on it!

MEDART

TELESCOPIC GYM SEATS*

Safer!
Stronger!
Roomier!
Lighter!
Easier Operating!
Write For Catalog

SEE OUR CATALOG IN SWEET'S

FRED MEDART PRODUCTS CO., INC.
3540 DeKalb Street St. Louis 18, Mo.

*Medart Telescopic Gym Seats are fully protected by U. S. Patents

First step was to erect the two-story precast concrete columns.

Next, the second floor spandrel beams were lowered into position.

Precast Concrete Units Cut Erection Time and Cost in Philadelphia Housing Project

Use of precast concrete columns, floors and roof decks for the 52 two-story buildings of the Liddonfield Housing Project in Philadelphia made possible fast construction at low cost per sq. ft. The 20 ft. wide buildings, ranging in length from 150 to nearly 200 ft., went up at a rate of two a week. Photos show the construction sequence employed.

Built for the Philadelphia Housing Authority, the 500,000 sq. ft. low-rent housing project consists of 412 firesafe dwelling units plus central-heating, community and management buildings. Liddonfield Architects of Philadelphia designed the project. Stofflet & Tillotson was the general contractor.

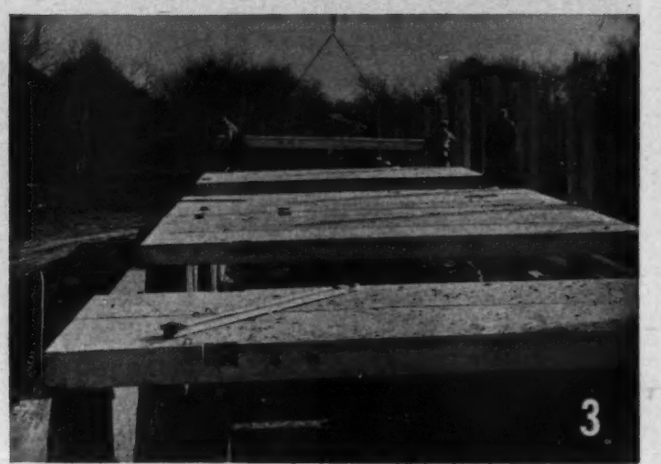
Fast, economical construction is possible in any structure designed to utilize precast concrete units. It can be built to conform with applicable building codes and will offer all the advantages of conventional concrete construction for frames, floors and walls.

For additional information write for free literature. Distribution is limited to the U. S. and Canada.

PORTLAND CEMENT ASSOCIATION

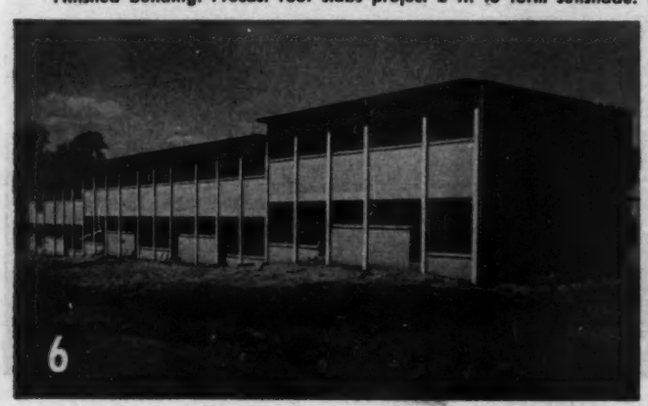
Dept. A7-8 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

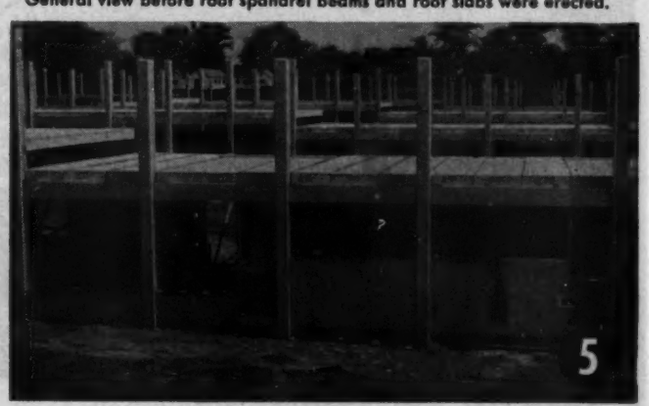


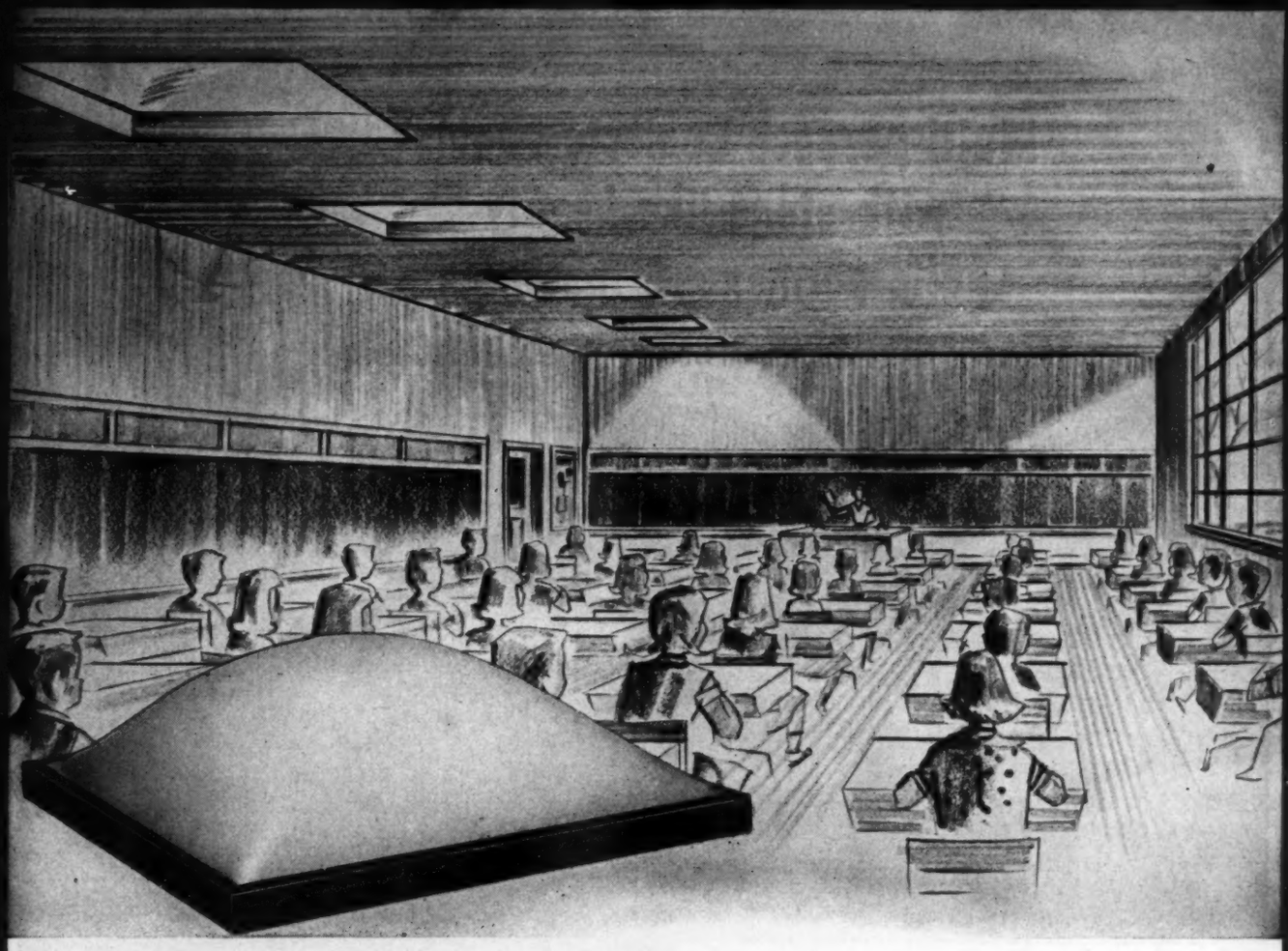
After rear walls were brought to second floor elevation, 3-ft. wide precast concrete floor channels with 10-in. legs were placed across the entire width of the buildings. Below is a view of the underside of the floor showing how conduits pass through sleeves in the legs.

General view before roof spandrel beams and roof slabs were erected.



Finished building. Precast roof slabs project 2 ft. to form sunshade.





Uniform daylighting with
domed PLEXIGLAS skylights

The most practical way to provide an even level of daylight throughout a room is to use skylight units equipped with PLEXIGLAS domes. Installed over areas farthest from windows, they bring the amount of daylight into balance, reduce electric lighting costs, permit lower ceiling heights.

By specifying skylights with domes formed from PLEXIGLAS acrylic plastic, you obtain:

One-Piece Construction—The entire opening is covered by a single leak-proof dome. Joints, sealing compounds and opaque cross members are eliminated.

Durability—The structural rigidity of the dome shape, plus the strength, resilience and proven weatherability of PLEXIGLAS, result in safety overhead and trouble-free service.

Easy Installation—Skylight units are prefabricated, complete with weather-proof framing for the dome. They are installed quickly, economically.

Daylighting Efficiency—White translucent domes transmit and diffuse 60%-75% of the daylight. Clear material transmits 92%. Glare is minimized because domes are overhead, recessed in ceiling.

Self-Cleaning—Dome shape keeps snow and dirt from accumulating. Light transmission remains high without maintenance.

Domed PLEXIGLAS skylights are available in a number of sizes and shapes. We will be glad to send you the names of sources of supply.

PLEXIGLAS is a trade mark, Reg. U.S. Pat. Off. and in other principal countries in the Western Hemisphere.

Canadian Distributor: *Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.*

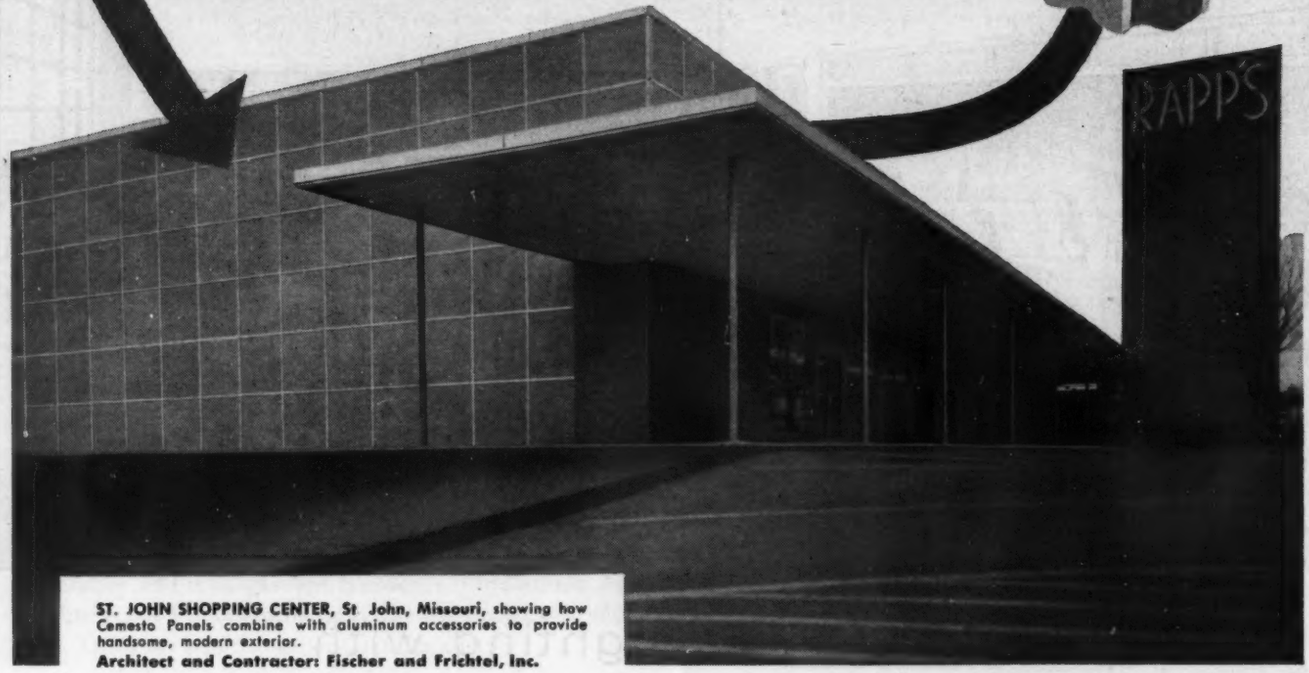
CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

Multi-purpose Cemesto Panels* with stone-like beauty build permanent, insulated curtain walls...quickly, economically!



ST. JOHN SHOPPING CENTER, St John, Missouri, showing how Cemesto Panels combine with aluminum accessories to provide handsome, modern exterior.
Architect and Contractor: Fischer and Frichtel, Inc.

Unlimited designs made possible with attractive new metal accessories

More and more architects who seek versatility and low cost in building materials are specifying Cemesto Panels. Because here are Structural Insulating Panels that build attractive curtain walls when used alone . . . or blend harmoniously with other wall materials such as brick, stone, wood, glass, and metals.

MANY BENEFITS

Each Cemesto Panel is a complete self-containing curtain wall unit with high insulation value, exceptional structural strength, and pleasing finish. The hard, smooth, stone-gray surfaces afford excellent light reflection and add new beauty. Panels can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly attached to steel framing with metal accessories, or to wood framing with nails or screws.

DOUBLE-PURPOSE ACCESSORIES

New extruded aluminum accessories aid Cemesto Panels in lending beauty to curtain walls. They have built-in Neoprene gaskets for weather tightness. Exterior face of these battens has a regular—or satin-finished—surface which harmonizes with gray Cemesto Panels.

Another Famous CELOTEX *Product*

CEMESTO

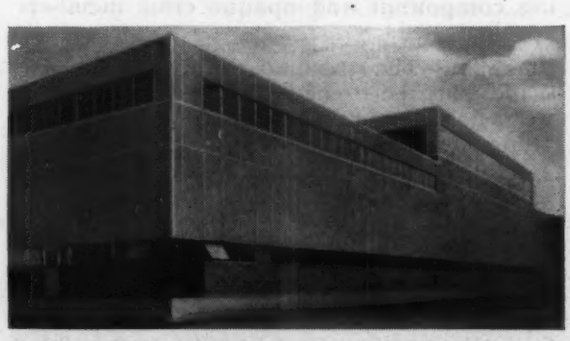
REG U S PAT OFF

STRUCTURAL INSULATING PANELS

THE CELOTEX CORPORATION
120 S. LA SALLE STREET, CHICAGO 3, ILLINOIS

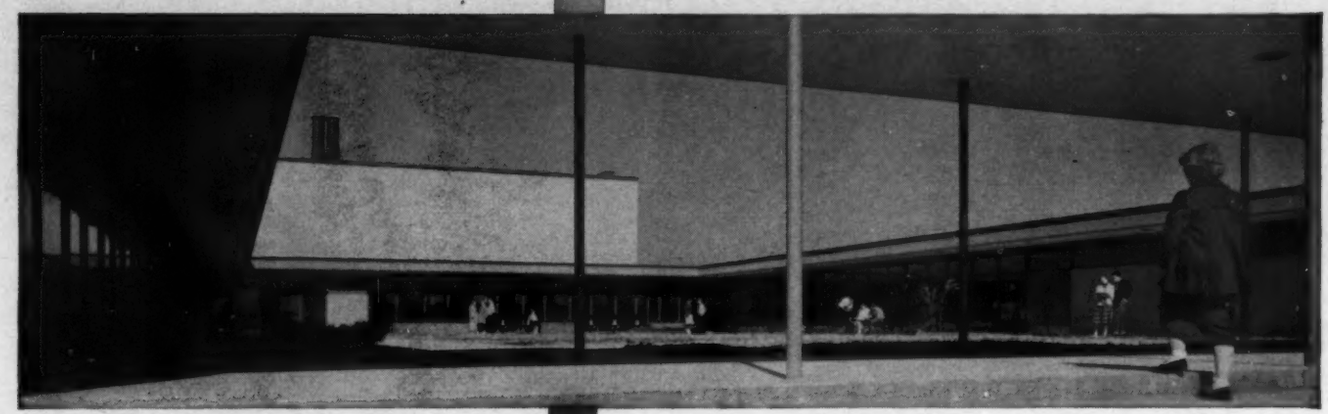
To the architect, Cemesto Panels bring a remarkably versatile building material that can be used for curtain walls, roof decks, partitions. Write today for New File 5500 . . . 52-page simplified data book on design and application details of Cemesto Structural Insulating Panels. The Celotex Corporation, Dept. AR-75, 120 S. LaSalle St., Chicago 3, Ill.

***Cemesto Panels** are strong, rigid, permanent insulating structural units! Their core is Celotex cane fiber insulating board effectively protected against dry rot and termite attack by the exclusive Ferox® Process. Non-combustible cement-asbestos facings are bonded to both sides of this insulating core by a moisture-proof adhesive. Cemesto Panels resist fire, weather, and wear, need no painting or maintenance.

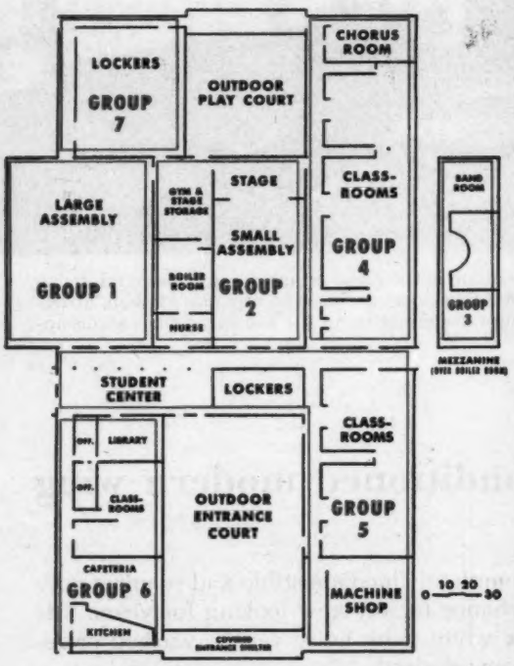


KEARNEY-TRECKER PLANT, Special Machinery Division, Milwaukee, Wis., presents striking exterior of Cemesto Panels with harmonizing stainless steel accessories. Total Cemesto Panel footage, including curtain walls and department partitions . . . 70,000 sq. ft. Designer and Engineer: V. K. Boynton.

another award-winning school gains comfort . . . saves fuel with JOHNSON *DUAL* CONTROL



Norman High School, Norman, Oklahoma, recipient of First Honor Award of the American Institute of Architects in 1954. Architects and Engineers: Perkins & Will, Chicago, and Caudill-Rowlett-Scott & Associates, Oklahoma City, and Bryan, Texas. Heating Contractor: Fischer Engineering Co., Norman.



Floor plan shows how Johnson *Dual* Thermostats are grouped for convenience. During regular school hours, a *Dual* Thermostat in each room maintains every space at the ideal comfort level. When classes are over, each group of thermostats is reset, from a central point, for lower, non-occupancy temperatures. In those rooms which continue in use, a touch of the button on the *Dual* Thermostat restores them to normal occupancy temperatures, *without changing the economy settings of the other thermostats.* In a busy school, heating only the occupied rooms can easily save enough fuel dollars to pay for the cost of the entire system!

Comfort *could have been* a real problem in this remarkable school. The size of the building itself is a factor . . . so are the large glass areas . . . widely varied room sizes . . . exposure . . . changing occupancy levels. A busy program of social, athletic and other extracurricular activities is another important consideration.

But comfort *isn't* a problem, and *never will be,* thanks to a pace-setting system of Johnson Automatic Temperature Control engineered to meet the exact needs of this building and its occupants.

Equally important, the special economy features of Johnson *Dual* Control make it possible to provide the finest in individual room temperature regulation at a large saving in fuel costs. The accompanying plan shows how.

You can easily insure the same degree of comfort and economy for your clients' buildings that Johnson has provided for this and thousands of other outstanding buildings of all types and sizes. Remember, Johnson brings to each job over 70 years' experience in solving every conceivable type of temperature control problem—*more specialized experience than anyone else!*

Why not take advantage of this experience? A nearby Johnson engineer will gladly make recommendations for your next building without obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

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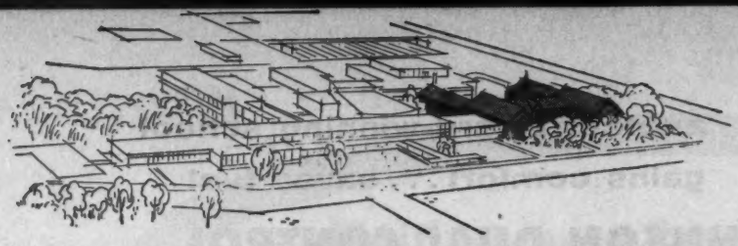
TEMPERATURE AIR CONDITIONING
PLANNING • MANUFACTURING • INSTALLING • SINCE 1885



Springfield High School,
Delaware County, Pa.
Architect: *Harry G. Stewart*
Acoustical Contractor: *Berger Acoustical Company*
Acoustical Materials: *Armstrong Travertone*
Armstrong Arrestone

The smart appearance of the Armstrong Travertone ceiling in the home economics area helps minimize the institutional atmosphere of these classrooms. Folding doors are used to separate kitchen, apartment, and sewing areas, while the Travertone ceiling throughout keeps the sounds of the various activities under control at all times.

Traditional school building gets sound-conditioned modern wing

In adding to the twenty-year-old Springfield School in Delaware County, Pa., architect Harry G. Stewart joined a new, modern high school wing to an existing junior high of traditional design. His choice of modern design and materials for the new wing kept costs down to 95 cents a cubic foot and provided a more efficient, functional layout than that of the original building.

Many noise-centers in the new addition, including a band rehearsal room, auditorium, and cafeteria, made sound conditioning vital to the architectural plan. To quiet the distracting sounds of footsteps and voices of 1450 students, two of Armstrong's acoustical ceiling materials—Travertone* and Arrestone—were installed throughout the new wing.

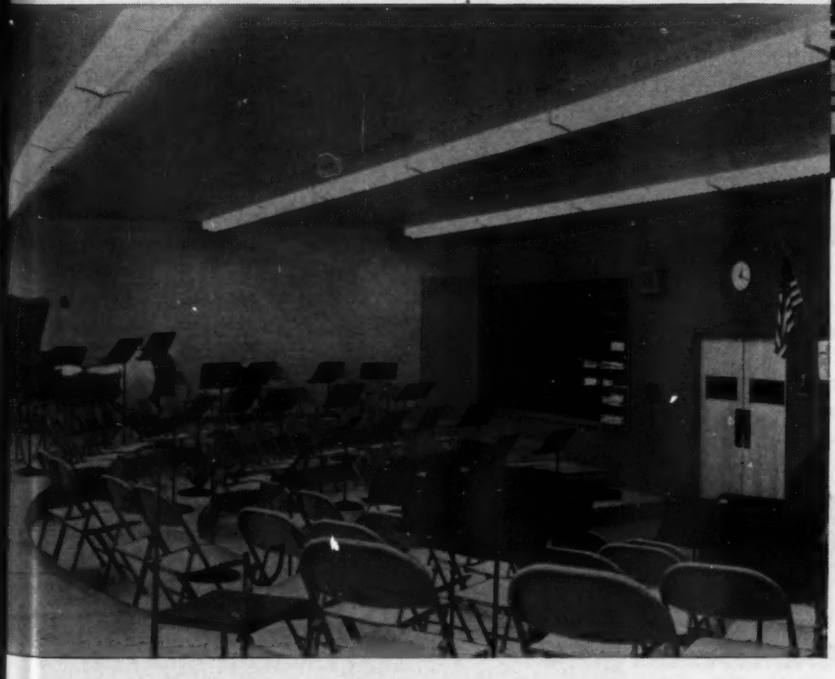
In the cafeteria, classrooms, library, and lobby, Armstrong Travertone absorbs up to 80% of the sound that strikes it. Travertone, a handsomely textured, mineral wool tile, is completely incombustible and requires only simple maintenance to stay new looking for years. Its light-reflective white paint finish can be washed or repainted whenever desired.

Metal-pan units of Armstrong Arrestone in the band room help prevent the build-up of distracting noise levels by reducing the reverberation of sound. Arrestone soaks up as much as 85% of sound and is quickly installed by conventional suspension methods. Upkeep is easy and economical, too.

Get full details on Travertone, Arrestone, and the complete line of Armstrong sound-conditioning materials from your Armstrong Acoustical Contractor. There's one material best suited to every sound-conditioning need. For your free copy of the 1955 edition of "Armstrong Acoustical Materials," write Armstrong Cork Company, 4207 Rock Street, Lancaster, Pennsylvania.

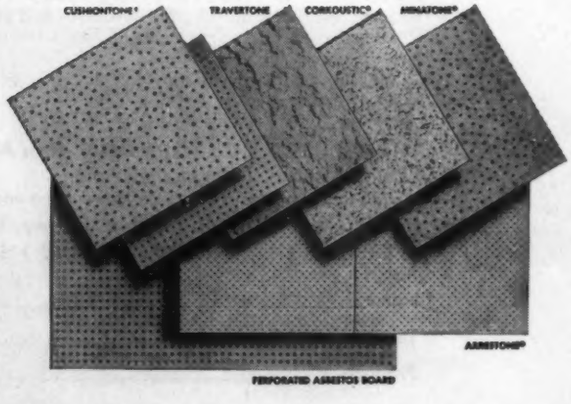
Easily cut and fitted to any shape, Armstrong Travertone is readily installed with lighting and ventilating fixtures. In this school lobby, the Travertone ceiling soaks up the sounds of footsteps and voices, prevents them from bouncing off the many hard surfaces and building to disturbing noise levels.

Proper acoustics in the band room are provided by acoustical ceilings of Armstrong Arrestone. The smooth, white paint surface of Arrestone's metal-pan units can be washed or repainted as often as needed. Installed by mechanical suspension, individual units of the Arrestone ceiling can be readily removed for access to concealed piping and wiring.



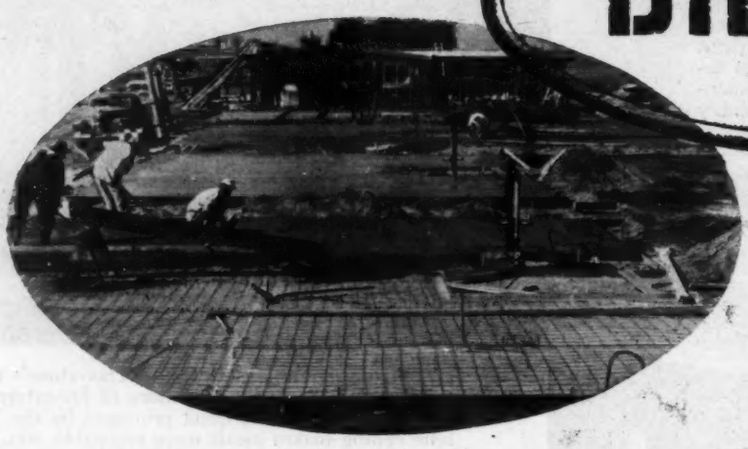
Completely fireproof, Armstrong Travertone's mineral wool composition adds a measure of fire-safety to the school cafeteria. The quiet promoted by the Travertone ceiling makes meals more enjoyable, too. Moderately priced, Travertone helped keep construction costs of the new wing down to 95 cents a cubic foot.

*TRADE-MARK



Armstrong ACOUSTICAL MATERIALS

for your protection every roll of genuine VISQUEEN® film is BRANDED



Use only VISQUEEN under the concrete slab. This permanent moisture barrier actually costs less in place than inferior, non-permanent types. Widths to 20 feet for economical handling. Get better protection and save on every house you build! For details, clip coupon, attach to your letterhead and mail.

Important! *VISQUEEN film is all polyethylene, but not all polyethylene is VISQUEEN. Only VISQUEEN, produced by process of U.S. Patents No. 2461975 and 2632206, has the benefit of research and resources of The VISKING Corporation.*

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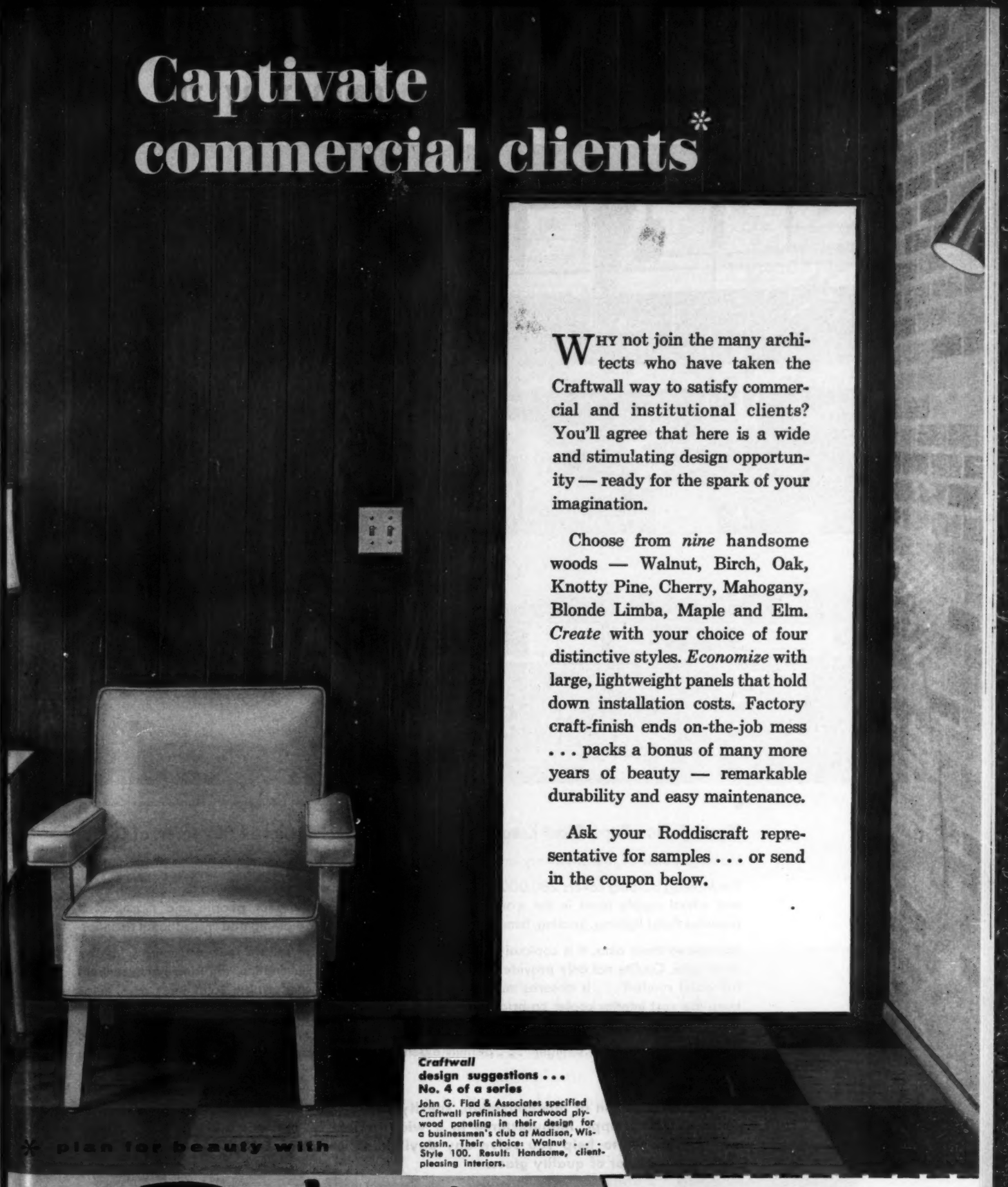

WHY not join the many architects who have taken the Craftwall way to satisfy commercial and institutional clients? You'll agree that here is a wide and stimulating design opportunity — ready for the spark of your imagination.

Choose from *nine* handsome woods — Walnut, Birch, Oak, Knotty Pine, Cherry, Mahogany, Blonde Limba, Maple and Elm. *Create* with your choice of four distinctive styles. *Economize* with large, lightweight panels that hold down installation costs. Factory craft-finish ends on-the-job mess . . . packs a bonus of many more years of beauty — remarkable durability and easy maintenance.

Ask your Roddiscraft representative for samples . . . or send in the coupon below.

Craftwall design suggestions . . . No. 4 of a series

John G. Flad & Associates specified Craftwall prefinished hardwood plywood paneling in their design for a businessmen's club at Madison, Wisconsin. Their choice: Walnut . . . Style 100. Result: Handsome, client-pleasing interiors.

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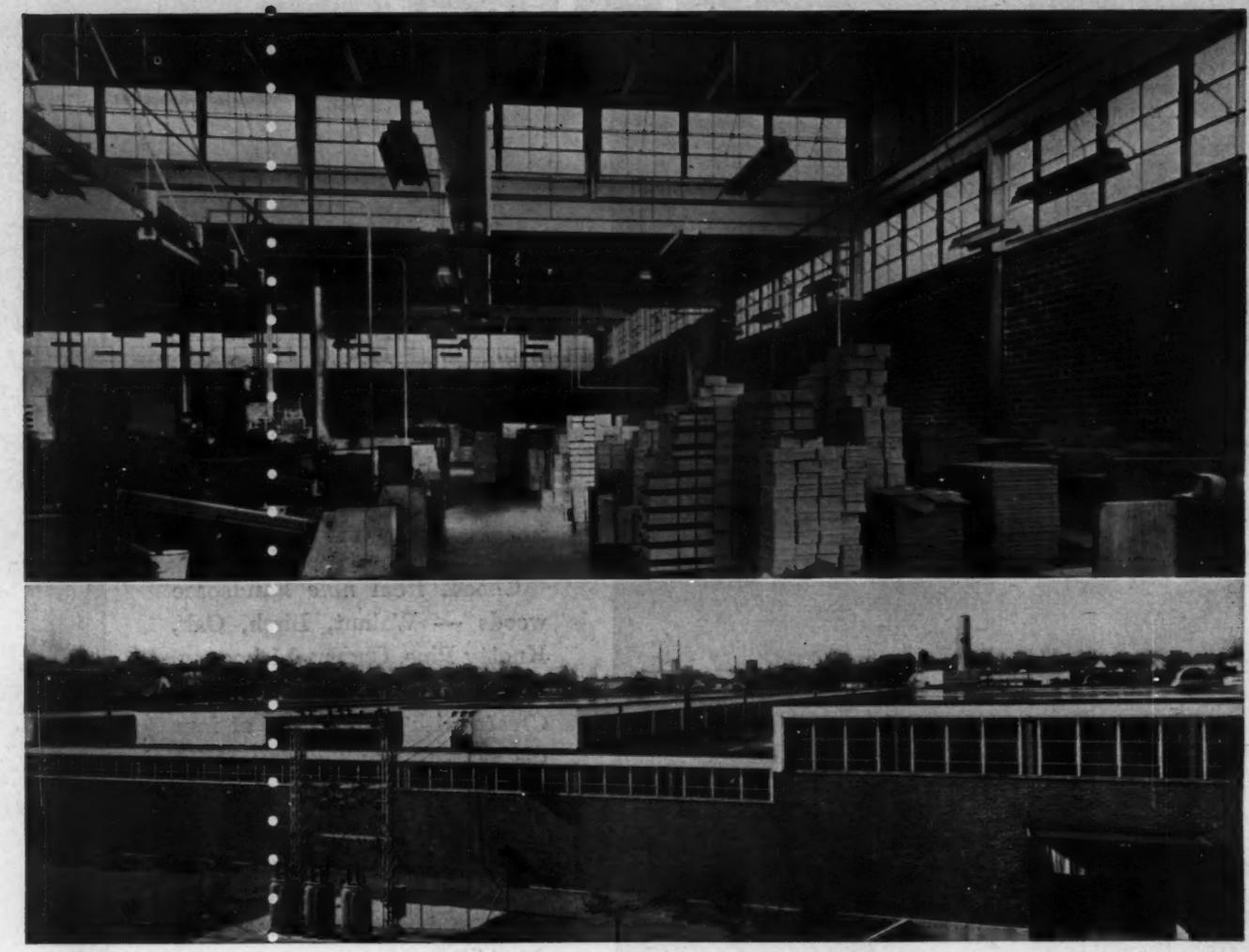
COOLITE GLASS BRINGS COMFORT BY THE ACRE



Moscowitz, Willner & Millkey, Architect. J. A. Jones, Contractor.

Montag's New Paper Plant Keeps Bright and Comfortable Under 24,000 Sq. Ft. of Coolite

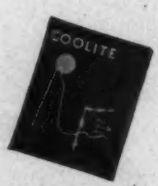
Montag, maker of fine stationery and school supplies for 65 years, recently occupied its new plant.

The Montag building covers 280,000 square feet and was designed to be the most modern stationery and school supply plant in the world. Conceived as an ideal plant for people and machines, it provides finest lighting, heating, humidity conditions and employee working and recreational facilities.

To achieve these aims, it is copiously daylighted with over 24,000 square feet of Coolite Glass by Mississippi. Coolite not only provides high levels of comfortable illumination, diffusing harsh sunlight for visual comfort . . . it absorbs much of the unwanted and uncomfortable solar heat rays, helps keep the vast interior cooler on brightest days.

Employees feel better, see better, work better under Coolite . . . for Coolite filters out unwanted harsh qualities of "raw sunlight" . . . permits extensive use of glass for low cost daylighting without undue heat.

In new construction or modernization, specify translucent light diffusing glass by Mississippi. Manufactured in a wide variety of patterns and surface finishes to help you solve any daylighting problem. See your nearby distributor of quality glass.



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Better Mortar for Blocks

BETTER PLASTICITY

To build the best possible concrete-block walls, the bricklayer must use plastic mortar. The mortar must be plastic enough to stick to the long head joint. It must not drop off the edges of the block when the block is swung up, and lowered into place. It must remain plastic long enough to enable the bricklayer to tap the block down to the line, easily and accurately.

Brixment mortar provides this necessary plasticity. Moreover, it stays soft and plastic long enough to let the bricklayer level, plumb and straighten the unit and adjust it to its final position in the wall before the mortar stiffens.

Louisville Cement Company . . . Louisville 2, Kentucky

CLAY PIPE will serve 10,000 *NEW* Homes in Los Angeles Community

Clay Pipe will be installed by the mile during the next 10 years to serve a $200 million community planned for the Palos Verdes Peninsula. The first subdivision alone, which is within a mile of the Pacific Ocean, requires nearly 10,000 feet of Clay Pipe. Ronald W. Bishop, City Engineer of Torrance, Calif., is in charge of the initial project, and the Colich Construction Co. are the sewerage contractors. Clay Pipe is being used exclusively on this project.

Wherever you see men and machines preparing the vital underground arteries of a modern pre-planned community . . . look for Vitrified Clay Pipe. The "old-timers" in the construction business have always used it . . . and progressive new engineers and contractors are discovering that there's no safe substitute for Clay Pipe. It's completely unaffected by the corrosive action of sewer acids and gases. Detergents can't soften it. Caustic drain-cleaning compounds can't weaken it. Heavy backfill loads can't cause it to oval or squash out. And a wide variety of joint designs and jointing methods insure fast installation and tight, permanently root-proof joints. Always specify Vitrified Clay Pipe. It's guaranteed for half a century!

CLAY PIPE FITTINGS SPEED INSTALLATION

You can always get fittings to match when you install Vitrified Clay Pipe. This Double T Branch, for example, is one of the many Vitrified Clay Fittings that make possible the utmost in flexibility and speed of installation.

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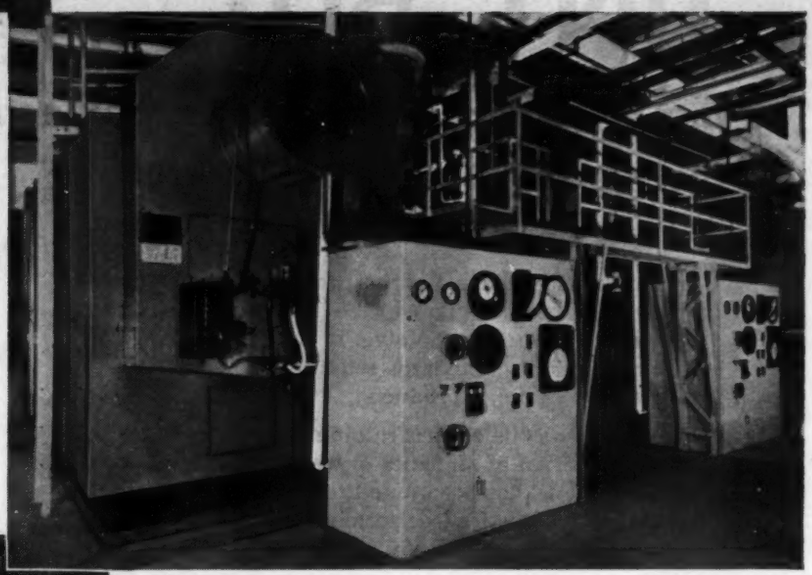
keeping steam cheap . . .



"Home" of the two, B&W Type FM Integral-Furnace Boilers is in the basement of the Service Building. Francisco & Jacobus, Engineer & Architect for the Service Center.

2 B&W FM Boilers Serve 5 Buildings *at*

LONG ISLAND LIGHTING'S NEW SERVICE CENTER

With its residential load centered in an area where new home construction is booming, the Long Island Lighting Company has always anticipated load growth far in advance. The most recent example of this policy is the creation of the new service center in Hicksville, N. Y.

Covering 78 acres, the center includes a headquarters group of six buildings (providing 200,000 sq. ft. of floor space), huge storage facilities, parking space for almost a thousand cars, and even a helicopter landing strip. When three more planned buildings are completed, the center will contain about everything needed to operate the service end of a modern utility.

The steam requirements for all but one of the buildings is supplied by two B&W Type FM Boilers. Each unit is capable of generating 20,000 lb of steam per hr at 125 psi. Normally burning gas, the FM Boilers are equipped with combination burners and controls that permit changing over to oil in a matter of seconds and without substituting equipment. Automatic control, with on-off operation for low loads, is another important operational and economy feature of these versatile, self-contained boilers.

Satisfaction with the performance of B&W Integral-Furnace Boilers—both FMs and FFs—operating at other Long Island Lighting locations—was a strong factor in the choice of a dual-unit FM installation for the new service center. Along with other utilities and a broad range of industrial, commercial, and institutional users, Long Island Lighting has found the Type FM Boiler ideally suited to its needs. The strong acceptance of this unique boiler is indicated by the total steam capacity of more than 10,000,000 lb per hr of the units now in service or on order. It is available in standardized sizes for loads ranging between 2900 and 40,000 lb of steam per hr at pressures to 235 psi—may be obtained for higher pressures and with moderate superheat. *Write for Bulletin G-76A for the complete details of this unusual small boiler with an illustrated description of its cost-saving features. The Babcock & Wilcox Company, Boiler Division, 161 East 42nd Street, New York 17, N. Y.*

COST-SAVING FEATURES

- Saves Erection Time and Cost
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- Safe, Automatic Operation

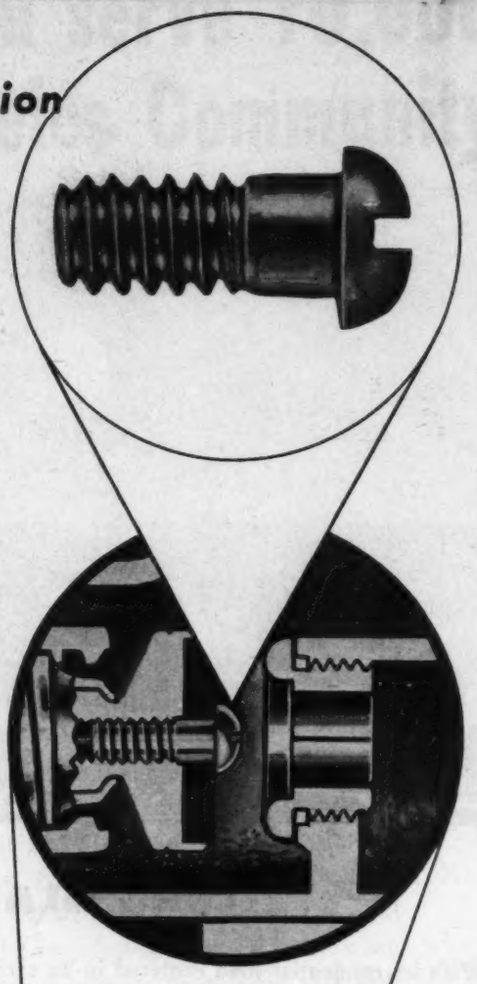
BABCOCK & WILCOX

BOILER DIVISION

G-702

TINY, BUT...

as important to performance perfection as jewels are to a good watch

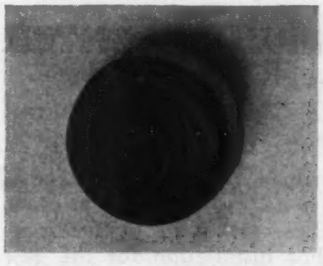


Insignificant, perhaps, yet this Monel screw is actually an essential precision part in the inner workings of the Speakman COMMANDER Valve. It is an example of the calibre of quality standards set throughout the entire COMMANDER Line of products.

On any valve, the washer retaining screw must resist corrosive action of all types of water for long periods of time. Monel has been found to be the perfect metal to insure trouble-free performance and long life in Speakman COMMANDER Valves.

This screw, combined with COMMANDER'S Monel swivel disc, Monel valve seat, plus almost watch-like precision in the fitting of parts, makes COMMANDER truly the quality line for quality installations—yet the cost is sensible!

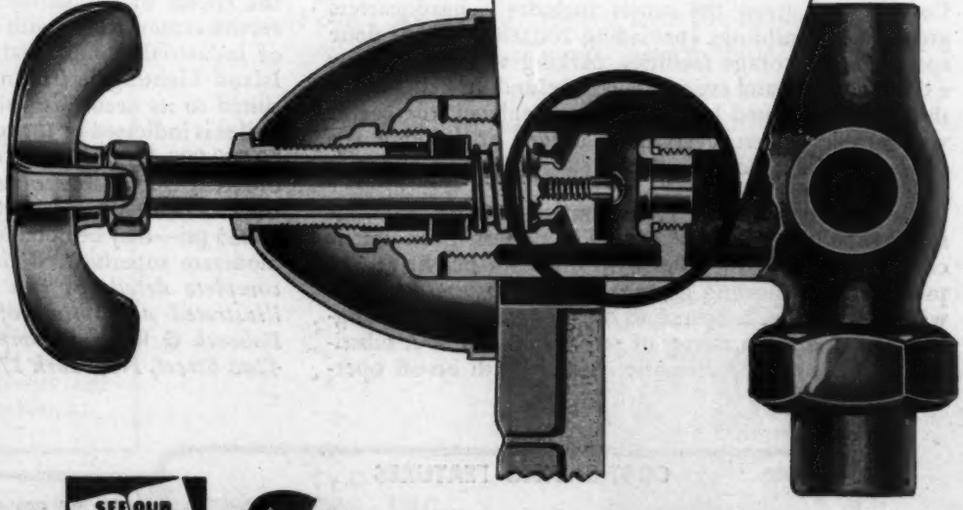
Architects and engineers who want the best in showers and plumbing fixture fittings can always rely on Speakman COMMANDER.



This is how an ordinary brass washer screw looks after a relatively short time in a typical shower valve. Corrosion has damaged this screw to a point where it will probably break and will require drilling and tapping when re-washering.

This is a Speakman Monel Washer-Retaining Screw after 15 years of continuous use in a Speakman COMMANDER Valve. Water has had no visible corrosive action on this screw and it may be removed easily—no need for time-consuming labor.

Remember, our reputation is *built* by the products we make, your reputation is *protected* by the products you specify.



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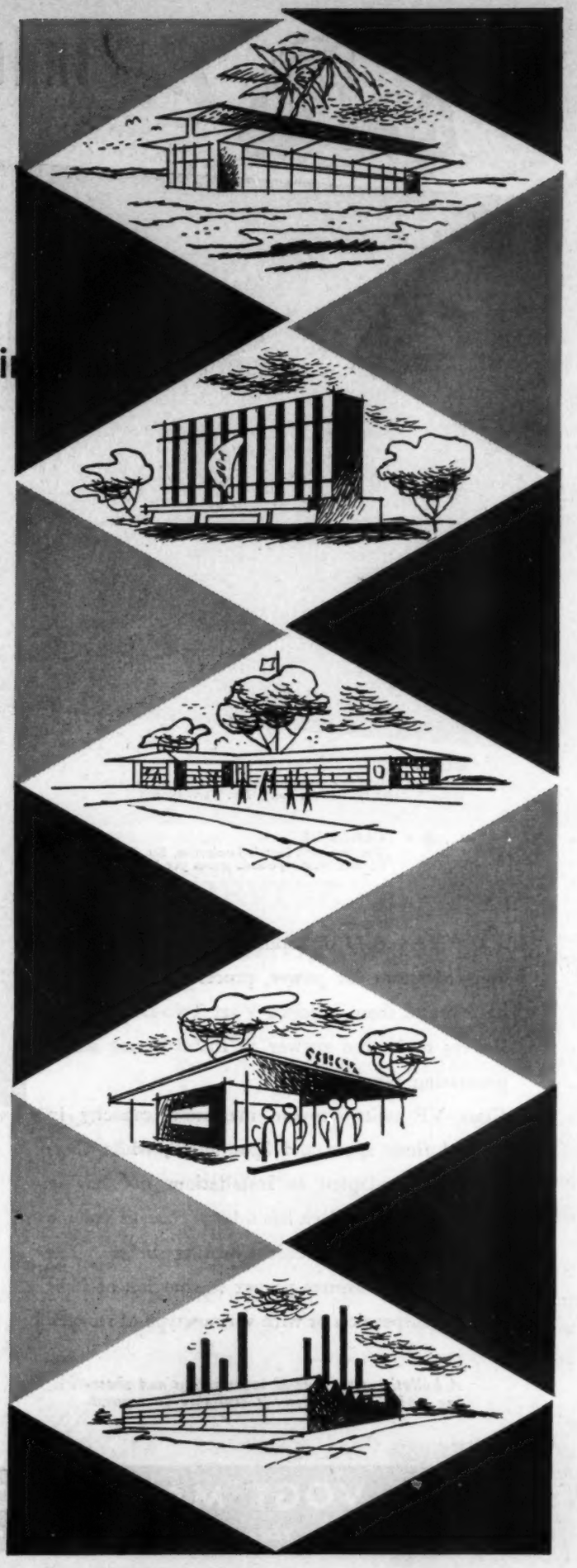

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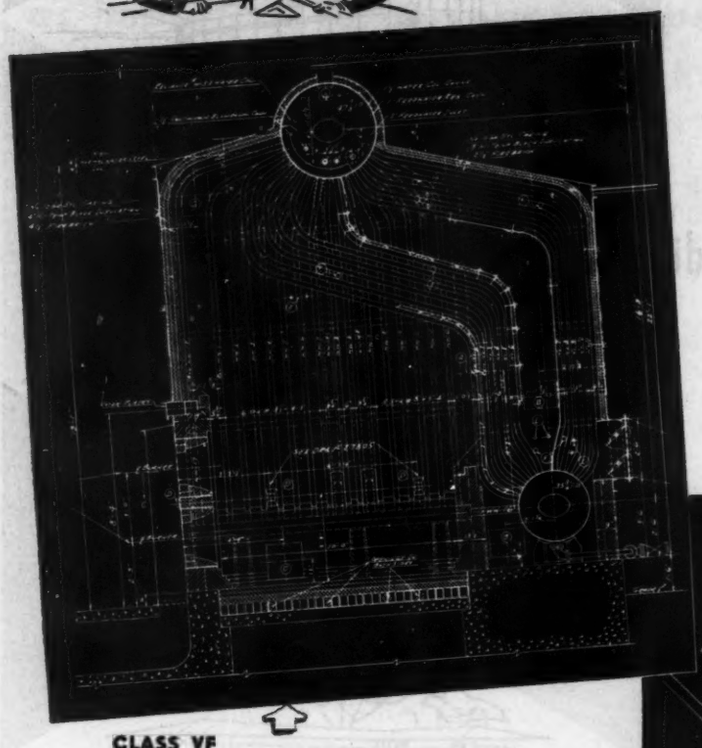
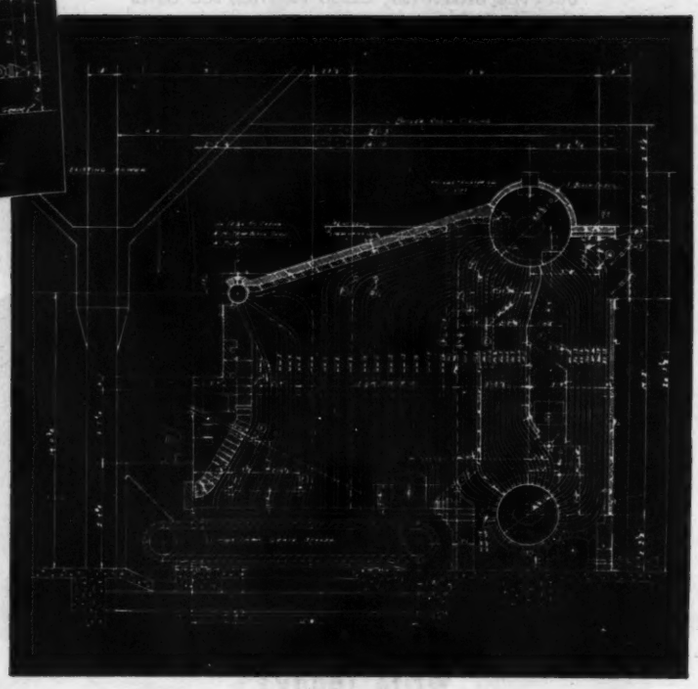


CLASS VF
A 22,000 pounds steam per hour unit installed at Indiana Farm Bureau Refinery, Mt. Vernon, Ind.



CLASS VS
The Seelbach Hotel, Louisville, Ky. is served by this 30,000 pounds steam per hour boiler.

A wide variety of industrial plants and other users of steam for power, processing, or heating have found these efficient Vogt Two-Drum Type Boilers to be the answer to their diverse steam generating requirements.

Class VF units provide maximum capacity in limited floor space and head room, while Class VS is best adapted to installations not having such restrictions. Each has a large furnace volume and a high ratio of radiant heating surface. The furnace design assures proper combustion of fuels fired in suspension or with various type of stokers

A bulletin with general information and showing typical installations is available on request.

Typical Users...

FOOD PROCESSING PLANTS

DISTILLERIES • HOTELS

HOSPITALS • CHEMICAL PLANTS

PETROLEUM REFINERIES

HENRY VOGT MACHINE CO., Louisville 10, Kentucky

BRANCH OFFICES: NEW YORK, PHILADELPHIA, CLEVELAND, CHICAGO, ST. LOUIS, DALLAS, CHARLESTON, W. VA.

Design For Modern Home Entrance by The Architects Collaborative

"WHAT A WEALTH OF COLOR AND SERVICE CERAMIC TILE GIVES...INSIDE AND OUT."

Walter Gropius
For The Architects Collaborative

Architect Walter Gropius and his TAC colleagues captured the beauty and practical nature of ceramic tile in this forward looking home entrance and patio. Making the most of their material, they compel ceramic tile to contribute the maximum in design and service.

This project shows graphically the wide range of colors, surface textures and unit sizes available in ceramic tile. Note the heavy duty floor tiles on the patio . . . the matte finish glazed tiles on the exterior sidewall . . . and the small floor units surfacing the decorative pool. They all resist water, wear and weather.

Ceramic tile surfaces can help you put your clients miles ahead on maintenance, too. Tile floors, walls and counter tops never need strenuous cleaning, waxing, painting or replacement.

When you plan your next residential, commercial or institutional project, remember you can save your client future maintenance expense. In addition, you can give the distinction of custom installations by the imaginative use of standard ceramic tiles.

The Modern Style is

CERAMIC tile

TILE COUNCIL OF AMERICA, Room 3401, 10 East 40th St., N.Y. 16, N.Y. or Room 933, 727 W. 7th St., Los Angeles, Calif.

PARTICIPATING COMPANIES: American Encaustic Tiling Co. • Architectural Tiling Co., Inc. • Atlantic Tile Mfg. Co. B. Mifflin Hood Co. • Cambridge Tile Mfg. Co. • Carlyle Tile Co. • General Tile Co. • Gladding, McBean & Co. • Jordan Tile Mfg. Co. Mosaic Tile Company • Murray Tile Co., Inc. • National Tile & Mfg. Co. • Olean Tile Co. • Pomona Tile Mfg. Co. • Robertson Mfg. Co. Royal Tile Manufacturing Co. • Sparta Ceramic Co. • Summitville Tiles, Inc. • United States Ceramic Tile Co. • Winburn Tile Mfg. Co.

At the "Award Winning" Long Island Jewish Hospital

Architect—Louis Allen Abramson, New York, N. Y.
Consulting Engineers—Slocum and Fuller, New York, N. Y.
General Contractor—Turner Construction Co., New York, N. Y.
Electrical Contractor—Charles F. Zweifel & Co., Inc., New York, N. Y.
Consultant—E. D. Rosenfeld, M.D., Long Island Jewish Hospital

No. 4832-I
15 Amps. 125 volts
10 Amps. 250 volts
Ivory Outlet

No. 4701-I
10 Amps. Silent Mercury Switch with Ivory Handle

Listed by Underwriters' Laboratories, Inc.

"MODERN HOSPITAL OF THE YEAR" — This outstanding achievement was awarded to the Long Island Jewish Hospital in New Hyde Park, L. I. Selection was based on excellence of architectural design, functional planning, economy of construction and operation. Specifications called for Bryant quality wiring devices to meet these rigid requirements.

HIGHEST QUALITY AND DEPENDABILITY—Continuous quality control keeps Bryant reliability and performance high. The 4701 mercury switch, for example, gives rugged, quiet operation, and the 4832 double-sided contact duplex outlet, are just two of the full line of Bryant devices that guarantee years of once-installed, stay-installed electrical service.

PERFORMANCE-PROVED IN HOME, OFFICE AND INDUSTRY—There's a Bryant device to meet every wiring specification for residential, commercial or industrial installation.

BRYANT
SUPERIOR WIRING DEVICES

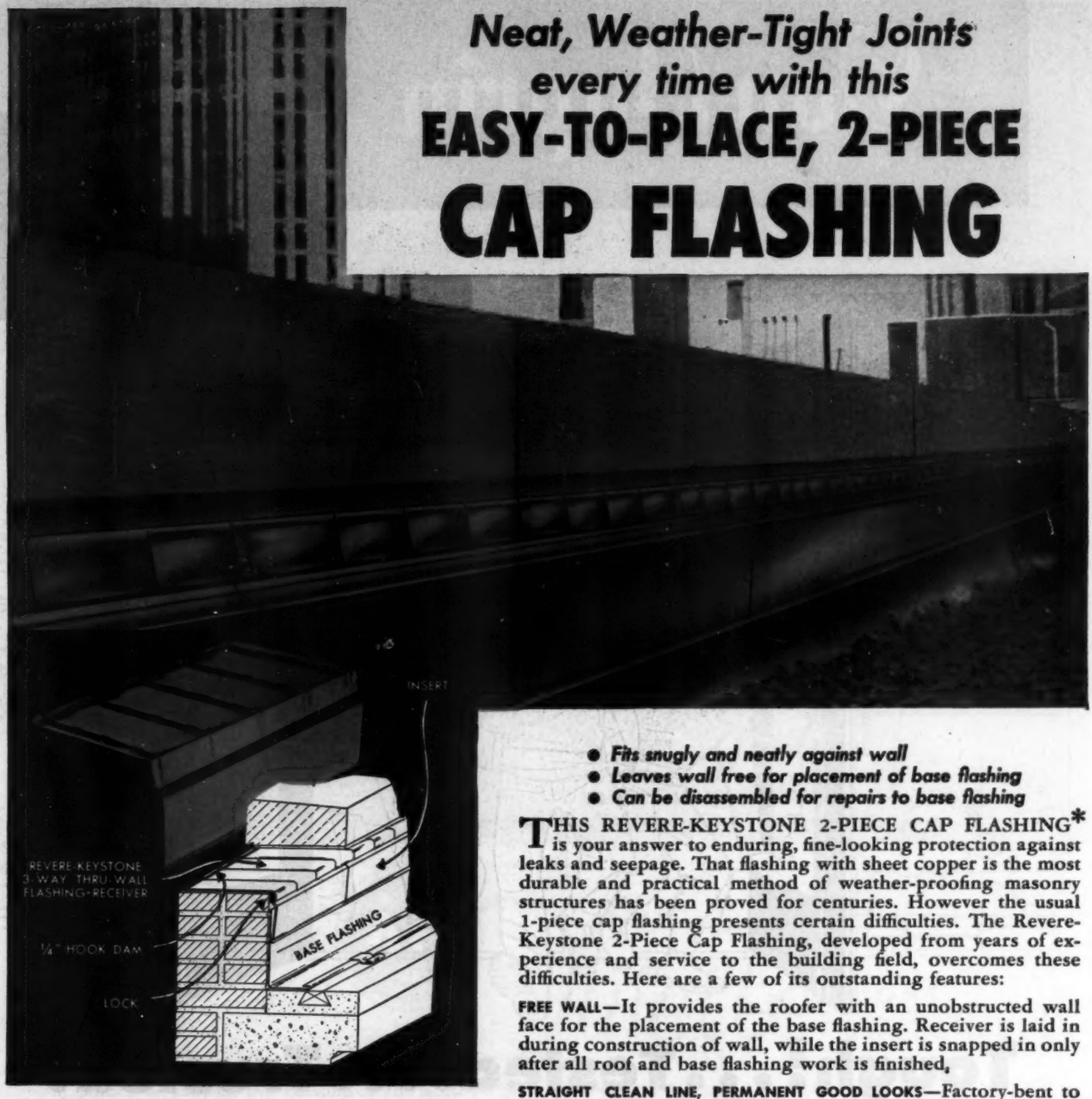
THE BRYANT ELECTRIC COMPANY

Bridgeport 2, Connecticut Chicago • Los Angeles

J-99940

Neat, Weather-Tight Joints every time with this

EASY-TO-PLACE, 2-PIECE CAP FLASHING



Top photo shows a typical installation of the Revere-Keystone 2-Piece Cap Flashing of all-copper construction. Note the snug fit and neat appearance.

Insert is furnished in 51" lengths, for recommended overlap of 3" minimum. Width is 4" on exposed face, to allow for a minimum 3" overlap of the base flashing.

Receiver is furnished in 49" lengths (48" layup), with 1" overlap in a locking tongue dam which assures proper alignment. REVERE-KEYSTONE 2-PIECE CAP FLASHING IS AVAILABLE IN TWO IN-THE-WALL FORMS.

a) Standard 4" flat copper receiver; with ¼" hook dam.
b) Combination receiver and thru-wall flashing (shown in isometric above).

SEND TODAY FOR THIS DESCRIPTIVE FOLDER ON THE REVERE-KEYSTONE 2-PIECE CAP FLASHING FOR YOUR FILES. IT GIVES FULL CONSTRUCTION DETAILS!

- *Fits snugly and neatly against wall*
- *Leaves wall free for placement of base flashing*
- *Can be disassembled for repairs to base flashing*

THIS REVERE-KEYSTONE 2-PIECE CAP FLASHING* is your answer to enduring, fine-looking protection against leaks and seepage. That flashing with sheet copper is the most durable and practical method of weather-proofing masonry structures has been proved for centuries. However the usual 1-piece cap flashing presents certain difficulties. The Revere-Keystone 2-Piece Cap Flashing, developed from years of experience and service to the building field, overcomes these difficulties. Here are a few of its outstanding features:

FREE WALL—It provides the roofer with an unobstructed wall face for the placement of the base flashing. Receiver is laid in during construction of wall, while the insert is snapped in only after all roof and base flashing work is finished,

STRAIGHT CLEAN LINE, PERMANENT GOOD LOOKS—Factory-bent to precise dimensions. This, with the one-inch locking tongue, assures alignment of receiver slots, uniform appearance.

PERFECT WEATHER-SEAL—Factory-formed angles on the receiver and insert cause latter to hug the base flashing, weather-seal effectively. Water cannot blow up behind flashing.

VERTICAL RECEIVER SLOT ON WALL FACE—Position of vertical receiver slot on face of wall eliminates possibility of the receiver slot being crushed shut by weight of masonry.

CAN BE DISASSEMBLED—Insert can be removed with a simple tool and used again, with no loss of neatness or snugness, when the built-up base flashing or roofing have to be repaired.

*Patented June 9, 1953—No. 2,641,203. Other Pats. Pend.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.
Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere

Von Duprin

FIRE AND
PANIC EXIT DEVICES

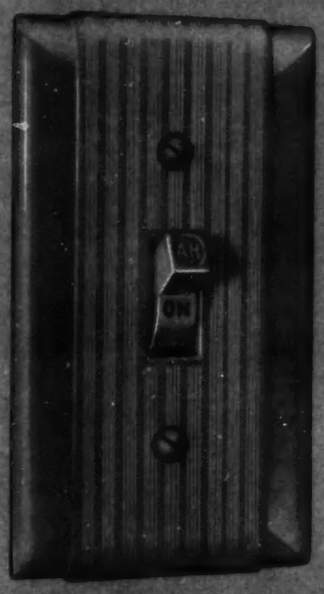
Tough!...Tested!...Trusted!

Von Duprin B^2
Vertical Rod
Device

● Here's the sort of treatment that Von Duprin exit devices absorb every day—year after year. And can they take it! Many of Von Duprin's devices have been in constant service for more than 40 years . . . with just normal maintenance. This durability, performance and precision design have teamed to make Von Duprin the preferred line of exit hardware. You can rely on Von Duprin to serve your daily traffic easily . . . and, most important, to be ready for that once-in-a-lifetime emergency. Von Duprin fire and panic exit devices—"the safe way out!"

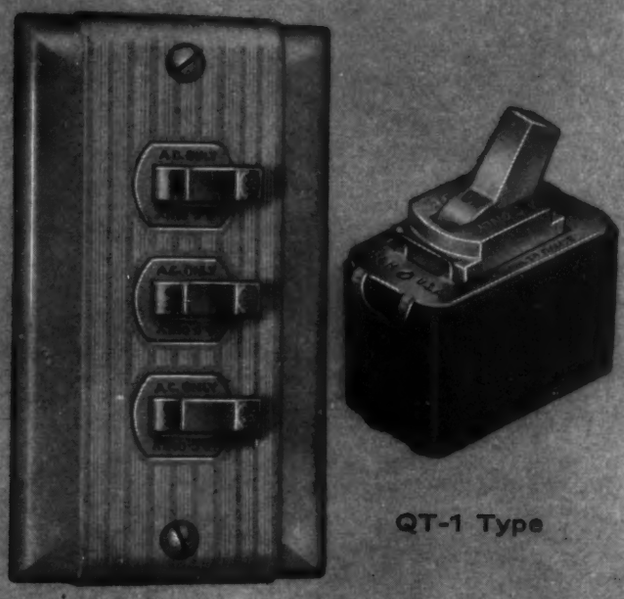
VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION • 402 WEST MARYLAND STREET, INDIANAPOLIS 9, INDIANA

FOR THOSE WHO SPECIFY QUIET *and* QUALITY



1891 Type

LIFETIME *Quiette* SWITCH



QT-1 Type

INTERCHANGEABLE *Quiette* SWITCH

A COMPLETE LINE OF ARROW AH HART *Quiette* LIGHT SWITCHES

In palace or project, the demand is for quality light switches that quietly go about the job of operating both incandescent or fluorescent lights and appliances through smooth mechanical action. The complete line of safe, dependable Arrow-Hart Specification Grade QUIETTE Light Switches fulfills that popular demand.

LIFETIME 1891 Type:

Ratings: 15 amp — 120-277 volt ac only; 20 amp — 120-277 volt ac only. With either Screw Terminals or Screwless Wire-Lock Terminals.

INTERCHANGEABLE QT-1 Type:

Ratings: 15 amp — 120-277 volt ac only, with Screwless Wire-Lock Terminals and either line or ground shunts. Also 20 Amp — 120-277 volt ac only, with Binding Screws.

Both available in single and double pole; 3- and 4-way; Brown or Ivorylite; listed as standard by Underwriters' Laboratories.

ARROW-HART
WIRING DEVICE DIVISION
103 HAWTHORN STREET, HARTFORD 6, CONN.

OFFICES, SALES ENGINEERS AND WAREHOUSES IN:

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BOSTON	DETROIT	NEW YORK	• • •
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Quality WIRING DEVICES • MOTOR CONTROLS
ENCLOSED SWITCHES • APPLIANCE SWITCHES

WIRING DEVICE DIVISION AR
THE ARROW-HART & HEGEMAN ELECTRIC CO.
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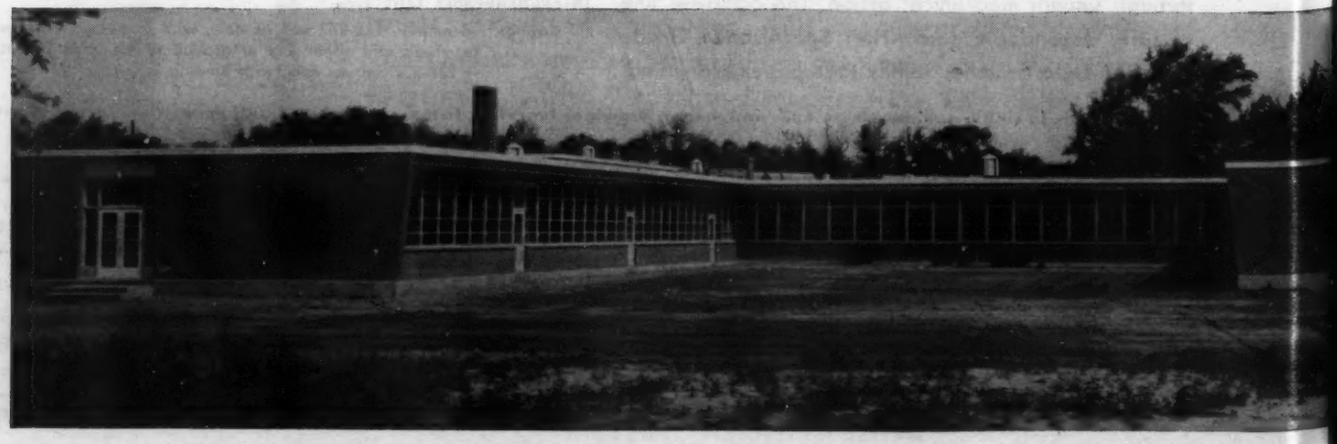
Please send my copy of "New Quiette Switches" folder (Form WD-ST-75)

NAME_____
POSITION_____
COMPANY_____
CO. ADDRESS_____
CITY_____ ZONE___ STATE____

Maryland — Catonsville High School, Catonsville, Md. Architect: James R. Edmunds, Jr., Baltimore, Md. Contractor: Costanza Construction Co., Baltimore.

These deluxe windows give you a lifetime finish that never needs painting...plus the strength of steel!

Pennsylvania — Darby Elementary School, Darby, Pa. Architect: Horace W. Castor, Philadelphia. Contractor: Sidney Elkman, Philadelphia.



Michigan Fairview Elementary School, Lansing, Michigan. Architect: O. J. Munson, Lansing. Contractor: Granger Brothers, Lansing.

RESULT—*the lowest lifetime maintenance costs of any windows on the market!*

Fenestra* Galvanized-Bonderized Steel Windows are made of solid bar steel sections, for the strongest possible window construction. Steel is noncombustible, and is the most fire-resistant material for windows . . . hardware never pulls off . . . steel offers ideal putty adhesion . . . no glass breakage resulting from expansion and contraction.

And all these wonderful qualities of steel are permanently preserved by an exclusive *double* protective coating. Super Hot-Dip Galvanizing alloys a thick zinc coating with the steel. This is done in Fenestra's own special plant—the only one of its kind in the world. Then a process called Bonderizing adds a nonmetallic coating over the zinc. The result is a handsome silvery-looking finish that protects the windows for life, *without painting!* And the cost of this modern, durable finish is as little as the cost of two inside-outside field coats of paint. Imagine the year-after-year savings in painting costs alone!

*®

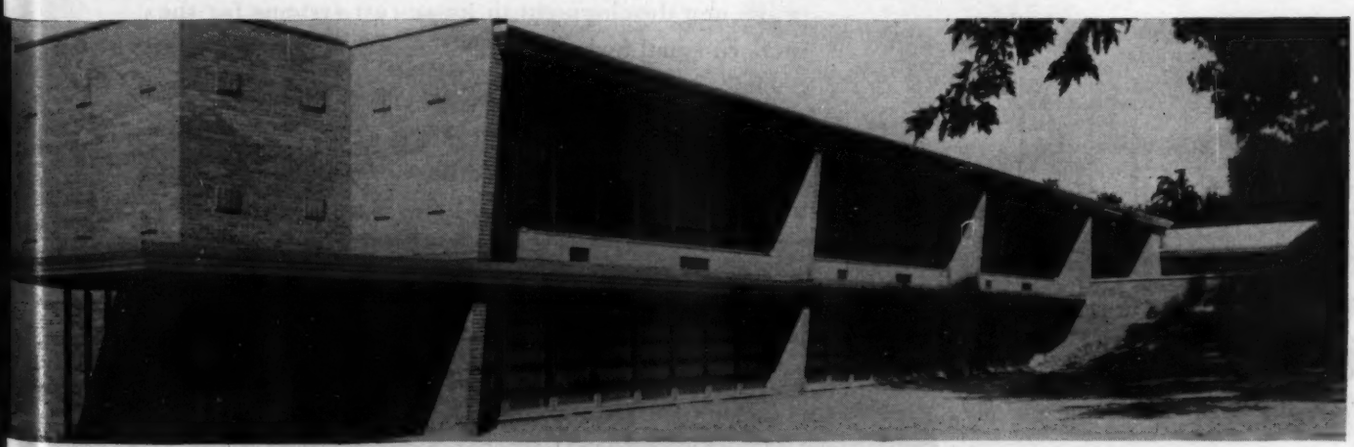
For complete information, contact your local Fenestra representative. He's listed in the yellow pages of your phone book. Or write for our free booklet on Fenestra Super Hot-Dip Galvanizing and Bonderizing. Detroit Steel Products Co., Dept. AR-7, 2252 East Grand Blvd., Detroit 11, Mich.

Fenestra GBS INTERMEDIATE WINDOWS

GALVANIZED-BONDERIZED-STEEL — THE STRONGEST MATERIAL, CORROSION-PROOFED FOR LIFE!

ARCHITECTURAL, RESIDENTIAL AND INDUSTRIAL WINDOWS • METAL BUILDING PANELS • ELECTRIFLOOR* • ROOF DECK • HOLLOW METAL SWING AND SLIDE DOORS

Illinois Monroe Avenue School, Peoria Heights, Ill. Architect: Lankton & Ziegele, Peoria. Contractor: Mehlenbeck Bros., Peoria.



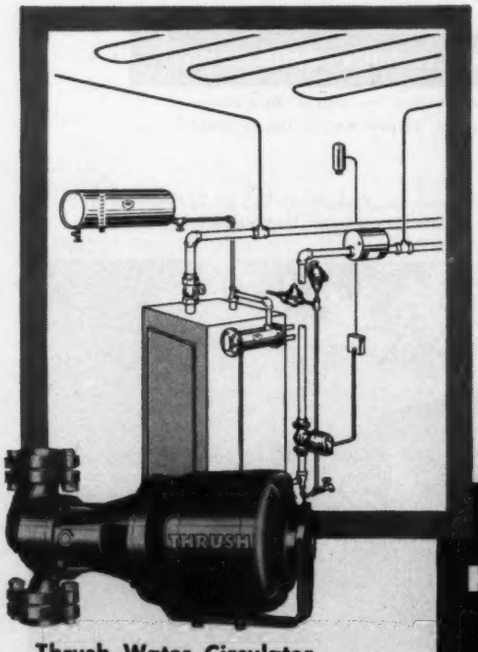
All their dreams come true . . . with a home heated with Thrush Radiant Hot Water Heat.

Real Sales Appeal

IN HOMES WITH

THRUSH *Radiant Hot Water Heat*

Heating is important to home buyers! Give them the best . . . Thrush Radiant Hot Water Heat. It provides mild heat, pleasant, never varying more than a fraction of a degree in temperature regardless of outdoor weather. It's completely automatic . . . low in operating cost.



Thrush Water Circulator

New Thrush equipment places radiant hot water heat within the budget of the small as well as the larger home today. Home-seekers prefer hot water heat because they know it's clean and quiet, without noisy fans or blowing drafts.

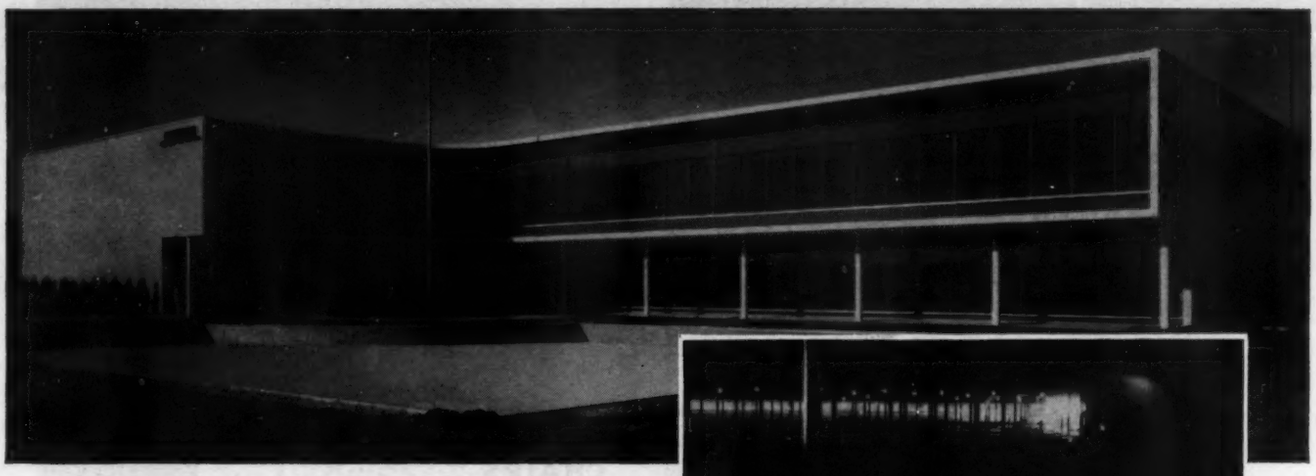
If you haven't been specifying hot water, it's worth your while to investigate. You'll be surprised at the new development in lower cost systems for the modern small home.

See our catalog in Sweet's or write Department J-7 for more information.

H. A. THRUSH & COMPANY

PERU, INDIANA

New buildings
Designed for Permanence
with American Welded Wire Fabric



PRETTY WAREHOUSE. Like most progressive companies, Jewel Tea Company wants its buildings, as well as its products and its salesmen, to make a good appearance in public. This new warehouse is a good example. Contributing to its long term appearance is durable concrete – reinforced with American Welded Wire Fabric. American Fabric is used to add strength and resistance to cracking in slabs, sidewalks, and curbs outside the building, and in concrete floors inside the building.

UNSEEN STRENGTH. No matter how fancy the façade, the permanence and long term cost of a building depend on the hidden quality lurking inside the structure. Concrete is an attractive, durable structural material when properly reinforced. And in this new apartment in Lakewood, Ohio, all concrete floors and slabs are strengthened and made more resistant to cracking with a tough backbone of American Welded Wire Fabric. American Fabric meets ASTM Specifications A 185-53T. Specify it for your concrete. For heavy duty construction American Welded Wire Fabric is now available in wire sizes up to and including ½" in diameter at 2", 3", 4", and 6" on centers.

YOUR CLIENTS WILL ASK
"is it Reinforced"

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO
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EVERY TYPE OF REINFORCED CONCRETE CONSTRUCTION NEEDS

USS AMERICAN WELDED WIRE FABRIC

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when your planning includes

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CHAIRS
FILES
CABINETS
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specify

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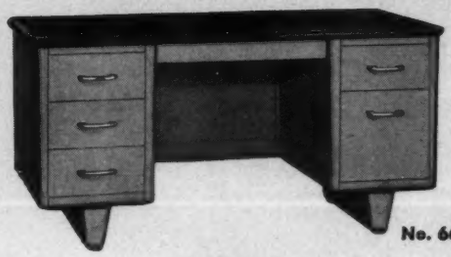
EQUIPMENT

your assurance of Beauty and Performance



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DESKS

A complete line . . . matching tables, bookcases and credenzas for every office need.

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Swivel, Side, Arm and Posture types styled and built for comfort.

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For every requirement. Superior quality . . . built for a life-time of service.

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Storage, wardrobe, utility racks and "Unit Robes". High quality, sturdy . . . time tested.

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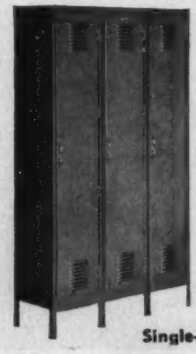

Single-Tier

Double-Tier

LOCKERS

Single-tier, double-tier and box types. Use ASE engineering assistance on planning.

your reputation requires

quality equipment . . . the functional quality that is built into ASE products. ASE beauty is enduring . . . ASE quality is inherent. Maximum flexibility permits unusual latitude in solving your planning problems. You can design for tomorrow today! Write now for valuable pre-planning information on all ASE furniture.

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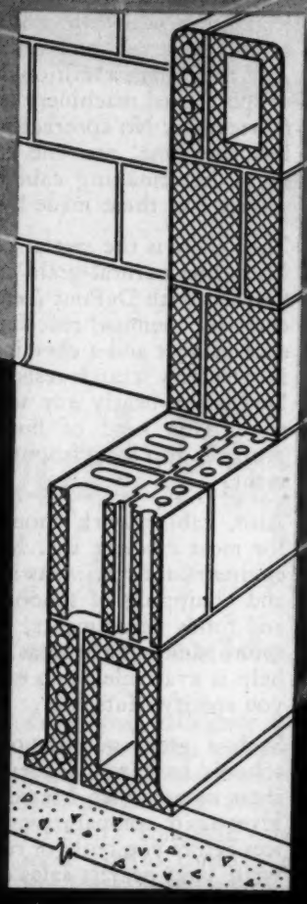
ALL-STEEL EQUIPMENT INC., Aurora, Illinois

WRITE FOR COMPLETE INFORMATION, THERE'S AN ASE DEALER NEAR YOU

reduce 2 building steps to 1 with...



durable...colorful...

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glazed facing tile

These large, burned-clay units build a sound, structural wall and a beautiful ceramic finish at the same time—no extra finishing is needed.

Stark Glazed Facing Tile meets the high standards of the Facing Tile Institute of which it is a charter member. And Stark's modular sizes, vertical coring, rigid grading, and careful selection produce a better job at a lower-in-the-wall cost.

Stark also gives you the benefit of over 40 years' experience in the clay products field—and a record of excellent relations with thousands of satisfied users.

For finest Facing Tile, call your Stark dealer first. An early order is your assurance of timely delivery.

FTI STRUCTURAL FACING TILE INSTITUTE

STARK CERAMICS, INC.

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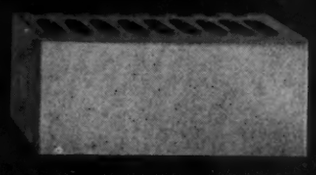

Why are factory-built cabinets best for schools?

To be sure, cabinets can sometimes be built on the job for lower initial cost. But school records prove that they are far more expensive in the long run.

Schools that install Mutschler factory-built cabinetwork report it is so well built, so durable they consider it as non-depreciative as the building itself. On-the-job cabinetwork just cannot measure up to this kind of quality.

From trees felled on company-owned tracts to installed cabinetwork, Mutschler factory-built cabinets are under the careful supervision of skilled craftsmen. And more than a million dollars worth of specialized machinery is used in their fabrication. No contractor or carpenter has the time, nor the equipment, to build homemaking cabinets that give service like those made by Mutschler.

Then there is the matter of finishes. All Mutschler natural-grain cabinetwork is finished with DuPont *Dulux* . . . which cures by chemical reaction in the presence of heat and a chemical catalyst. It is extremely scratch-resistant, and is unharmed by nearly any solvent or solution. This kind of finish cannot be properly applied without factory equipment.

Also, cabinetwork should be planned for most efficient use. Mutschler sales engineers are specialists in the planning and equipping of school homemaking and foods departments, arts and crafts rooms, and storage areas. This planning help is available at no extra cost when you specify Mutschler.

Such a great number of the nation's schools have found they get more for their money with Mutschler. Why not investigate comparative costs and services before you build or remodel? Call or write your nearest sales office below.

HOMEMAKING foods laboratory and sewing room at South High School in Minneapolis, Minnesota. This installation handled by Haldeman-Homme, Inc., St. Paul 14, Minn.

FOR—Foods Laboratory
Laundry Area
Arts & Crafts
Clothing Laboratory
Sewing Laboratory
Grooming Area
Home Management Area
Child Care Area
General Storage Areas

Mutschler SCHOOL EQUIPMENT

Finest in domestic and institutional cabinetwork since 1893!

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CARBEAU, INC.—Boston, Mass.; Maine, Vermont, New Hampshire
W. S. BALLOU—Massapequa, L.I., New York; New York City, Long Island
SCHOOL EQUIPMENT, INC.—Syracuse 3, N.Y.; New York State
AMERICAN SEATING CO.—Philadelphia 30, Pa.; Pennsylvania, New Jersey (South), Delaware

SOUTHEAST and SOUTH
SOUTHERN DESK COMPANY—Hickory, N. Carolina; Maryland, West Virginia, Virginia, North Carolina, Tennessee, Mississippi
AMERICAN SEATING CO.—Atlanta 3, Georgia; South Carolina, Georgia, Alabama, Florida
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HOOVER BROTHERS—Kansas City 6, Missouri; Nebraska, Kansas, Missouri (Western)
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AMERICAN SCHOOL SUPPLY CO.—Denver 2, Colo.; Colorado, Wyoming (Eastern)
HULL EQUIPMENT COMPANY—Salt Lake City 3, Utah; Nevada, Idaho, Wyoming (Western), Montana
AMERICAN SEATING CO.—Los Angeles 3, California; California (Southern)
AMERICAN SEATING CO.—San Francisco 24, California; California (Northern)

NORTHWEST and OTHERS
MUTSCHLER BROTHERS CO.—Nappanee, Indiana; Oregon, Washington, North Dakota, South Dakota, Illinois (Southern)
TOM DEWEY & COMPANY—Lanikai, Hawaii; Hawaiian Islands

Central High School
Louisville, Kentucky
Architects: Thomas J. Nolan and Sons.

General Plywood Flush Doors...

built to take the abuse of school use

and provide the beauty of finest furniture.

Functional efficiency is the key note to good school design and General doors readily fit into this picture. But even more important is the durability and stability required of doors on jobs like this one. They must be constructed to take the terrific punishment which hundreds of youngsters daily hand out.

General's completely hot press bonded solid core door, manufactured under the most careful controls provides permanent strength and rigidity plus the beauty of the finest book matched birch faces. There is no more stable or beautiful solid core door manufactured.

You can specify General doors with the assurance that in every construction detail they far exceed standard requirements.

MATCHING EDGE BANDS

Three-quarter inch matching hardwood edge bands on both vertical edges provide ample trim area.

EDGE-GLUED CORE BLOCKS

Three dimensional stability is obtained through the use of core blocks of varying length, edge-glued to each other in a staggered pattern, and to the frame, under extreme heat and pressure.

GREATER BEAUTY

The smooth, hard, cabinet-maker's finish is produced by an extra sanding operation on huge belt sanders. Faster and finer finishing on the job.

SEVEN-PLY CONSTRUCTION

Absolute flatness of surface is insured through the use of heavy 3-ply panels bonded to rigid edge-grain blocks that have been selected for uniformity, and dried evenly.

GENERAL PLYWOOD
CORPORATION
LOUISVILLE, KENTUCKY.

Over Fifty Years in Hardwood Plywood

"Most Modern Structure in Tri-State Area"...

Interior of Guaranty National Bank, Huntington, W.Va. • Certain-teed Plasters were used here exclusively. • Architect: Bank Building and Equipment Corp. of America, St. Louis, Mo. • General Contractor: C. H. Jimison & Sons, Huntington, W.Va. • Plastering Contractor: J. C. Hicks, Huntington, W.Va. • Supplier: Carolina Lumber Company, Huntington, W.Va.

Certain-teed PLASTERS USED EXCLUSIVELY FOR INTERIOR WALLS AND CEILINGS

REG. U.S. PAT. OFF.

Better Working Plaster... Gives Me More Yardage

—says plastering contractor

Called the "most modern structure in the Tri-State area of West Virginia, Ohio and Kentucky," the Guaranty National of Huntington is a handsome example of modern bank design.

All interior plastering was done with Certain-teed materials: Certain-teed Fibered Plaster, Satin Spar Gauging Plaster, Sunflower Moulding Plaster.

Mr. Hicks, plastering contractor, and a member of C.P.I.A., says:

"I've tried them all, and I think Certain-teed is best. Certain-teed is more uniform, bag after bag. It is a better working plaster, it's easier to mix and it gives me more yardage. I stick with Certain-teed because I find I do a much better job with it."

Certain-teed makes a complete line of base coat plasters, including Lite-Mix,® finishing plasters, including Kalite® Acoustic, as well as gauging, molding and casting plasters; also famous Beaver® Gypsum Lath. All our base coat plasters are "Plastisized," Certain-teed's exclusive manufacturing process that gives a finer grind, greater plasticity and better workability.

Write us direct for the specific information you need about Certain-teed Plasters now.

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Quality made Certain . . . Satisfaction Guaranteed

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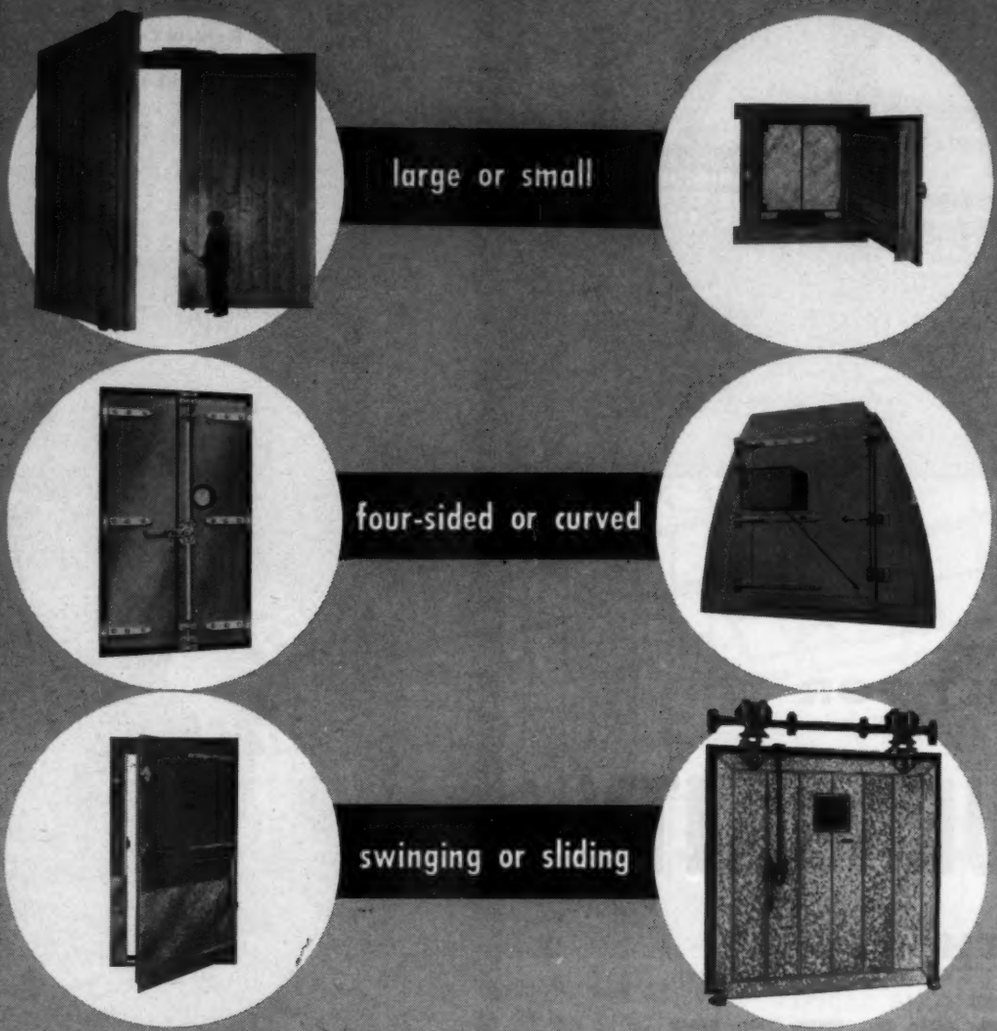
EXPORT DEPARTMENT: 100 EAST 42ND ST., NEW YORK 17, N.Y.

ASPHALT ROOFING • SHINGLES • SIDING • ASBESTOS CEMENT ROOFING AND SIDING SHINGLES
GYPSUM PLASTER • LATH • WALLBOARD • SHEATHING • ROOF DECKS • FIBERGLAS BUILDING INSULATION
ROOF INSULATION • SIDING CUSHION

Whatever a Plant Door Must Be...



JAMISON Will Build It

When structural or plant operating problems call for unusual doors, the most effective and trouble-saving solution is a Jamison Engineered Door. Perhaps you need a door that's unusual in size, shape, or the way it opens. Maybe the door must be engineered for unusual service conditions. Whatever the problem, Jamison brings to it solution-minded research, engineering, and production... plus more than 50 years' experience in developing cold storage and other special-purpose doors. Send the coupon now for specific information.

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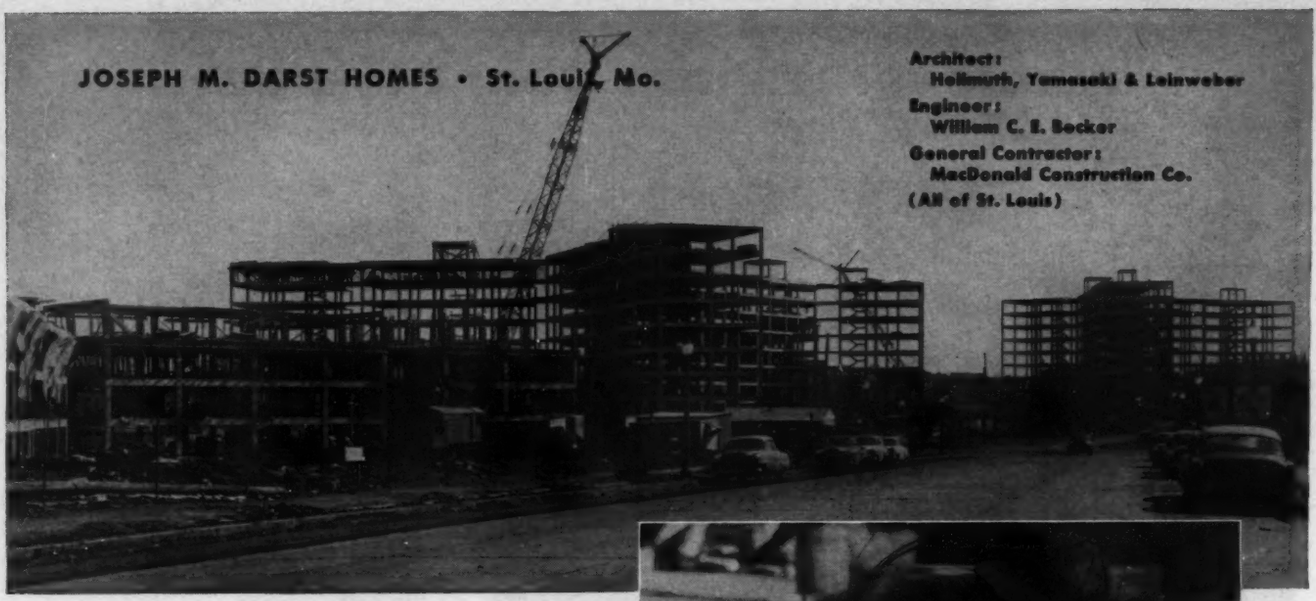
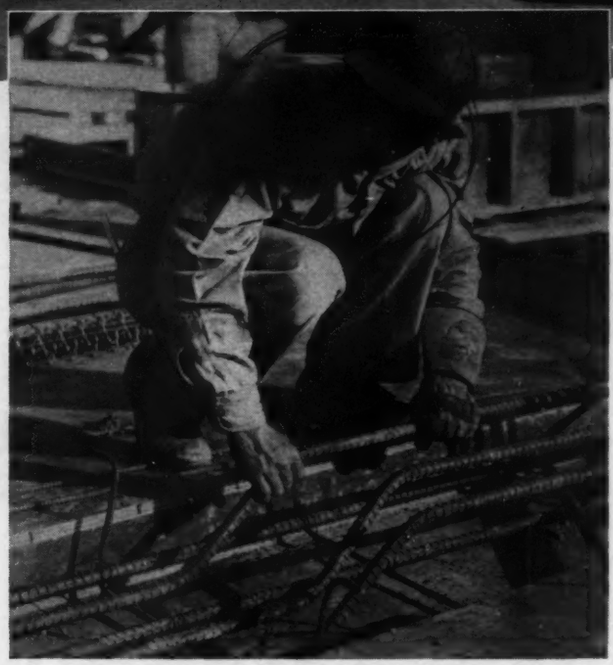
Name_____ Title_____

Company_____

Address_____





BUILT FOR

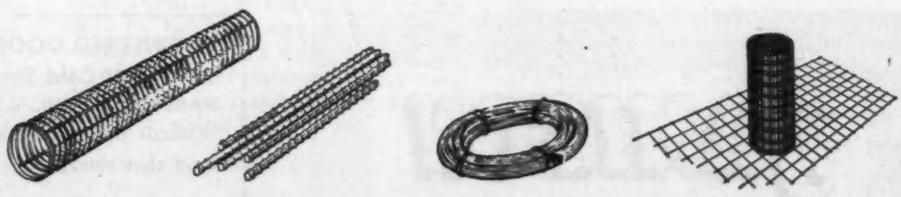
DURABILITY

WITH

LACLEDE STEEL REINFORCEMENT

Laclede reinforcing steels—including multi-rib round reinforcing bars, spirals, tie wire, welded wire fabric and accessories—give vital strength and permanency to this new St. Louis housing project.

Scheduled for occupancy early in 1956, the Darst Homes will provide attractive and comfortable living quarters for 1,238 families.



LACLEDE

LACLEDE STEEL COMPANY

SAINT LOUIS, MISSOURI ◆ Producers of Steel for Industry and Construction

Ualco® aluminum
COMMERCIAL PROJECTED WINDOWS

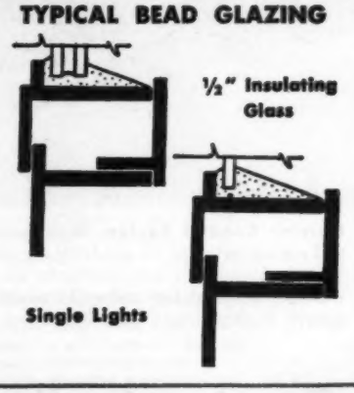
- *heavier* extruded aluminum frames meet all requirements!
- *extra deep* extrusions accommodate ½-in. insulating glass!

Technically proved windows! Made of heavy sections of extruded aluminum which will never rust, rot or warp; eliminates the obsolescence factor found in materials which are less durable and less impervious to weathering. Because Ualco Aluminum Commercial Projected Windows never need painting, require no upkeep ever, these windows earn client satisfaction . . . remain a lasting tribute to the architect!

Available in project-out vents and hopper vents which will accommodate standard Thermopane or Twindow.

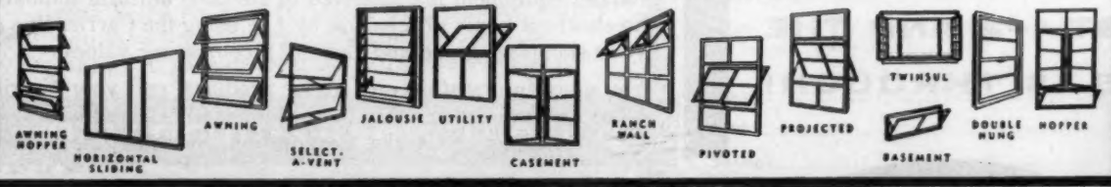
Whenever you have a commission requiring the best in commercial windows or window walls, you'll find Ualco Aluminum Commercial Projected Windows do the job!

TYPICAL BEAD GLAZING



SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE 16A (U) OR LIGHT CONSTRUCTION FILE 5A (UN) FOR COMPLETE INFORMATION.

★ ***ENGINEERING PLANNING SERVICE:*** to assist architects, engineers and contractors in making "take-offs" and solving window problems.



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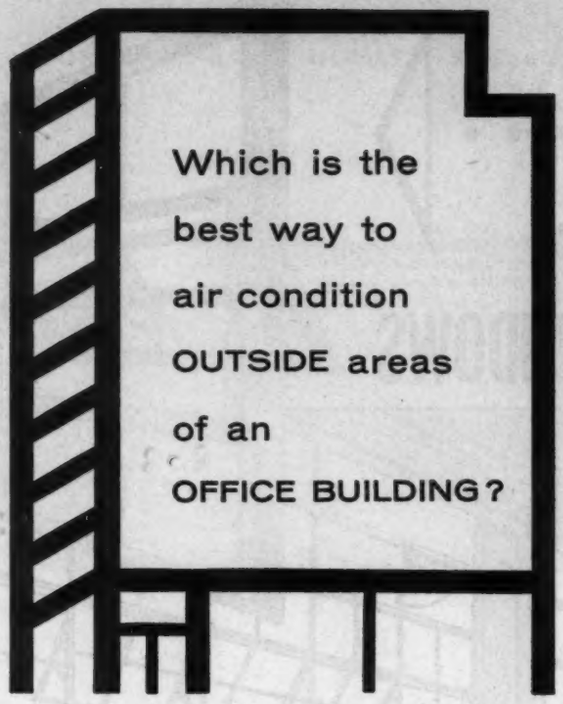
SHEFFIELD, ALABAMA

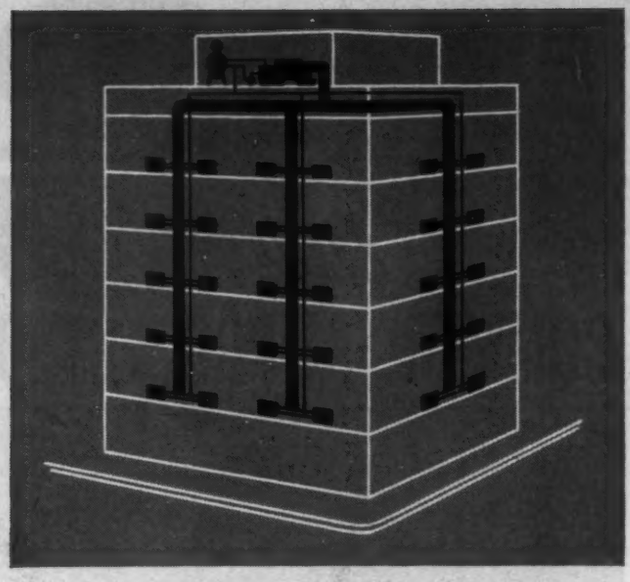
Warehouses and Sales Offices: Canton, Ohio; Elizabeth, N. J.; Hialeah, Fla.; Florence, Ala.; Montgomery, Ala.; Van Nuys, Calif.; Greensboro, N. C.; Aurora, Ill.; Ruston, La.; Kansas City, Mo.; Washington, D. C.

Ualco

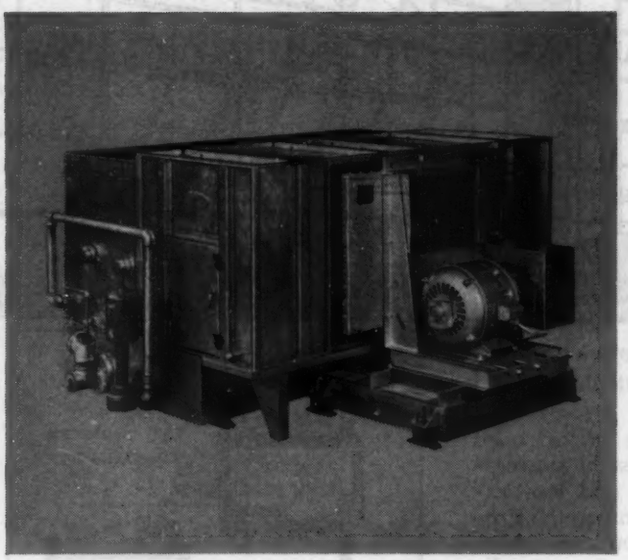
WORLD'S LARGEST MANUFACTURER OF ALUMINUM WINDOWS

UALCO WINDOWS ARE UNCONDITIONALLY GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP

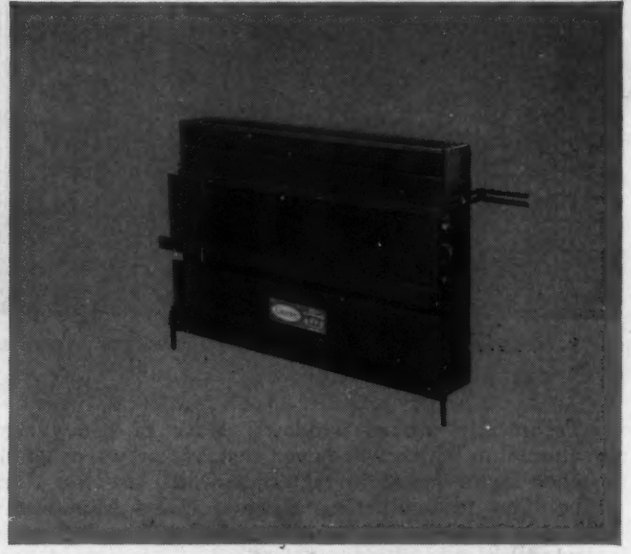




Carrier's Weathermaster* System brings perfect climate to each outside office in all seasons and under all conditions. It is the most flexible air conditioning system you can install. You have wide choice of room units, air handling equipment and refrigeration machines—absorption, centrifugal, reciprocating.



Carrier Conduit System Weathermakers are compact central station primary air conditioning units for the Weathermaster System. Designed for high-velocity air distribution, fan-coil units include insulated fan and coil casing, DX or chilled water coils, sprays, high-pressure fan. Capacities from 6500 to 21,000 cfm.



Carrier Weathermaster Room Units are of 4 different types and 20 sizes. Each type is designed to deliver different quantities of cooling, ventilation or heat as required by rooms of different size, use and location. Weathermaster room units have no moving parts. Base unit may be furred in or installed in cabinet.

Carrier is the quickest way to the right answer

JUST 1–2 AND THE JOB IS THROUGH!

Carrier has *all* the ways to air condition *any* job—and all Carrier equipment is engineered to the same uniform standard. So short-cut hours of selection by (1) using the Carrier line as your shopping guide and then (2) comparing values.

For more information on Carrier products, call your Carrier office for the catalog, "Air Conditioning for Office Buildings." Or write direct to Carrier Corporation, Syracuse, New York.

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Carrier **air conditioning · refrigeration · industrial heating**

TILE makes cleanliness easy

This tiled washroom does an outstanding job of intercepting juvenile juggernauts on their way to lunch. Bookshelves to the right, soapsuds to the left—and then, food straight ahead. The result: cleanliness in a hurry.

Cleanliness in a hurry is a phrase which applies equally well to the room itself. American-Olean Tile on walls and floor defies splashes and puddles. Ceramic tile is much easier to clean than the pupils, and it will outlast many generations of them.

The more you specify A-O tile—in new or remodeled rooms—the more maintenance money you save for school administration. And the more you gain in terms of attractive interiors.

American-Olean Tile Co.

Executive Offices: 1080 Cannon Avenue, Lansdale, Pennsylvania
Factories: Lansdale, Pennsylvania • Olean, New York
Member: Tile Council of America

TILE SPECIFICATIONS

Color Plate 345, Washroom, Lake High School, Salisbury, Maryland. Architect, Edwin Wilson Booth.
Walls: 28 Pearl Gray. Base: S-49 Gloss Black.
Floor: Sand Buff; Textone Pavers.

New FREE booklet offers ideas and suggestions for school planning

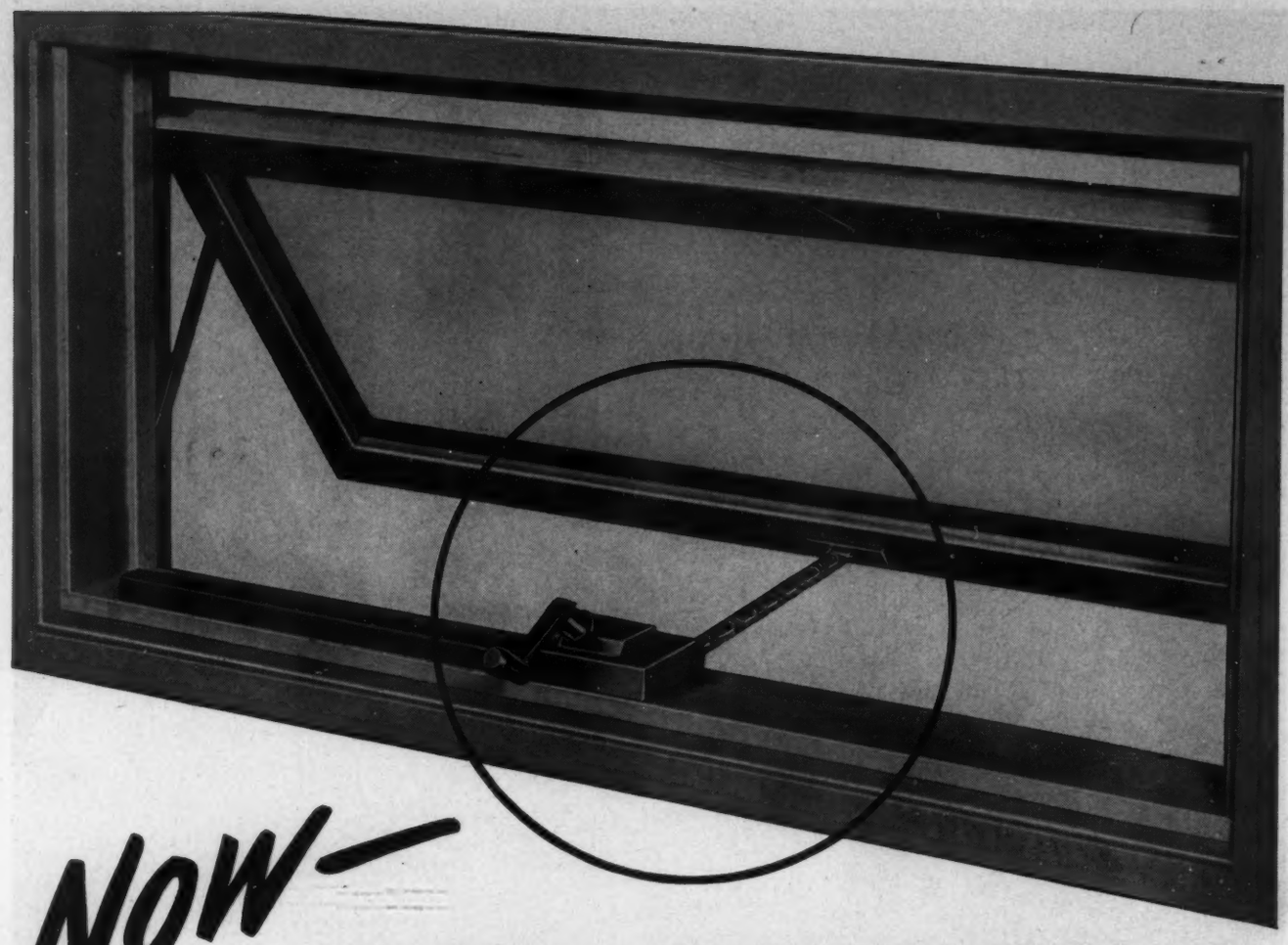
Booklet 600, "Tile for Schools", just off the press, contains color photographs of a wide range of actual tile installations in schools and hospitals. It gives you practical ideas which you can adapt for remodeling jobs or new buildings. This booklet is free—send for it today!

See our catalog in Sweet's Architectural File.

American-Olean Tile Company
1080 Cannon Avenue, Lansdale, Pennsylvania

Please send me, without obligation, your Booklet 600 "Tile for Schools".

Name_____
Title_____
School_____
Address_____
City_____ **Zone**_____ **State**_____



NOW—

A NEW, COMPLETELY DIFFERENT GETTY OPERATOR AND HINGE FOR POPULAR AWNING-TYPE WINDOWS

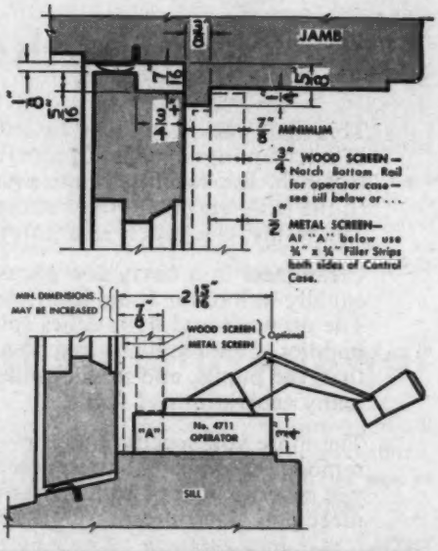
Here's the best operator-and-hinge set you can offer for popular awning-type windows. Its simplified construction makes other models completely out of date. It's easier both to use and to install.

The operator itself is designed on a new, completely different principle. Of the worm-and-gear type, it works with a chain which becomes rigid when extended in opening a window.

This new Getty No. 4711 Set holds the window securely in any open position—closes and locks it *tightly* without disturbing the screen. The hinge drops the sash from 4½ to 6 in., so that the outside of sash may be cleaned from inside the room. Both operator and hinge can be quickly and easily installed. There's no complicated hardware to fuss with or get out of order.

Specify Getty No. 4711 Sets for windows from 14 to 30 in. high and up to a maximum width of 48 in. Set #1 is for windows 14-17⅛ in. high; Set #2 for windows 18-23⅜ in. high; Set #3 for windows 23½-30 in. high. For complete information, including specification data, see your hardware consultant or write us direct.

Remember—More Getty Operators Are Used on Casements Today Than All Other Makes Combined!

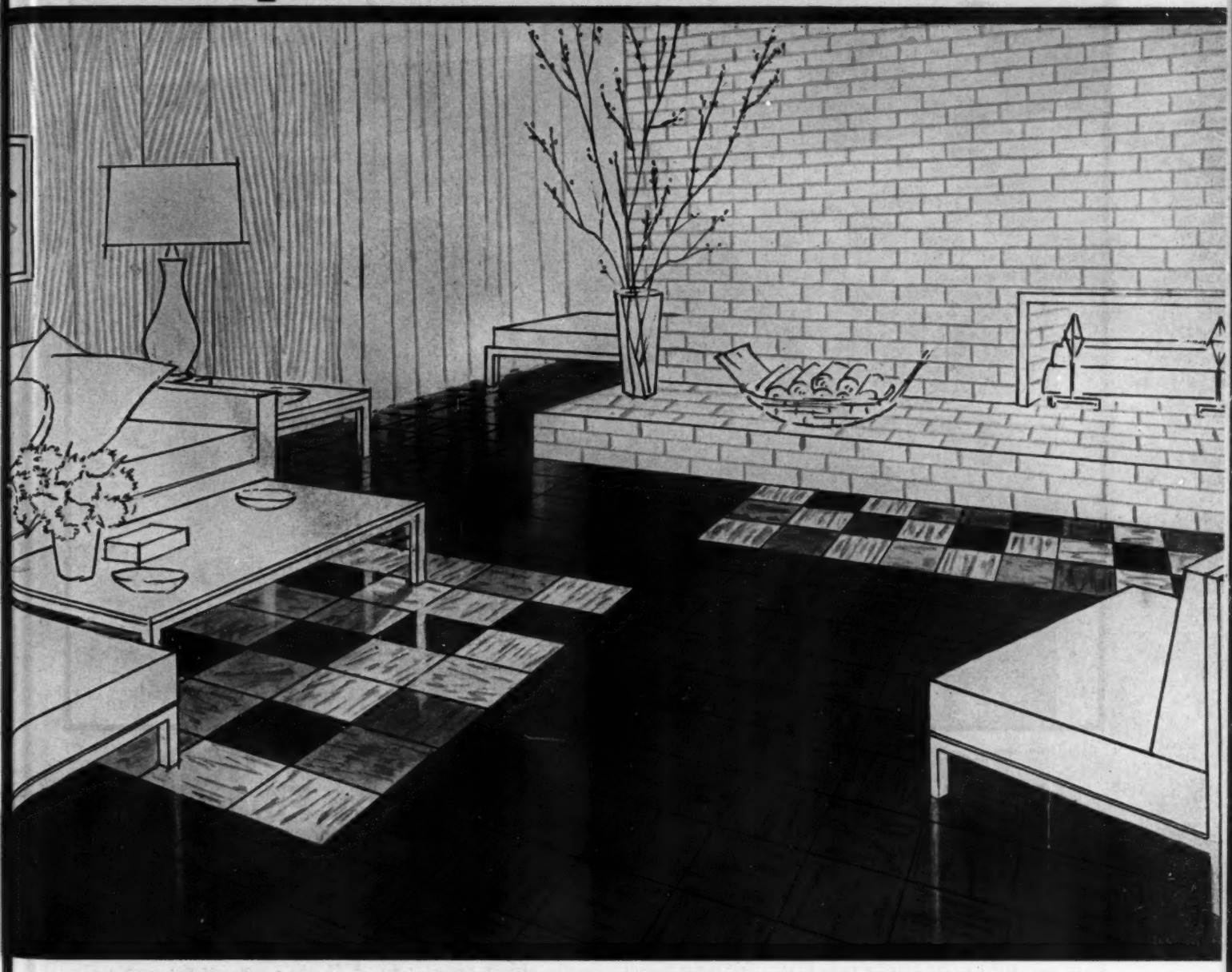

JAMB
7/8" MINIMUM
3/4" WOOD SCREEN—Notch Bottom Rail for operator case—see sill below or . . .
1/2" METAL SCREEN—At "A" below use 3/8" x 3/8" Filler Strips both sides of Control Case.
MIN. DIMENSIONS MAY BE INCREASED
WOOD SCREEN
METAL SCREEN
Optional
"A"
No. 4711 OPERATOR
SILL

H. S. GETTY & CO., INC., 3348 NORTH 10TH STREET, PHILADELPHIA 40, PA.

Canadian Representative: A. N. Ormsby Co., 23 Scott St., Toronto

Preview by Monsanto

Vinyl tile demonstrates its decorative versatility on a living room floor



The contribution that vinyl tile can make to take-it-easy living is well-known. Its colorful beauty, its matchless durability, its minimum maintenance requirements have been proved on millions of kitchen and bathroom floors.

These same qualities are now broadening the use of vinyl tile in other areas. In the sketch reproduced above it creates an interesting Afghan pattern in a living room. Its original decorative possibilities are endless.

No other flooring material stands up so well under traffic. Vinyl tile is practically immune to abrasion, grease, acid, bleaches, alkali and harsh cleansers. The smooth, non-porous surface cleans with a light damp-mopping.

Colors are wearproof because they extend the full depth of the tile. Installation can be made over plywood or smooth concrete slab subflooring.

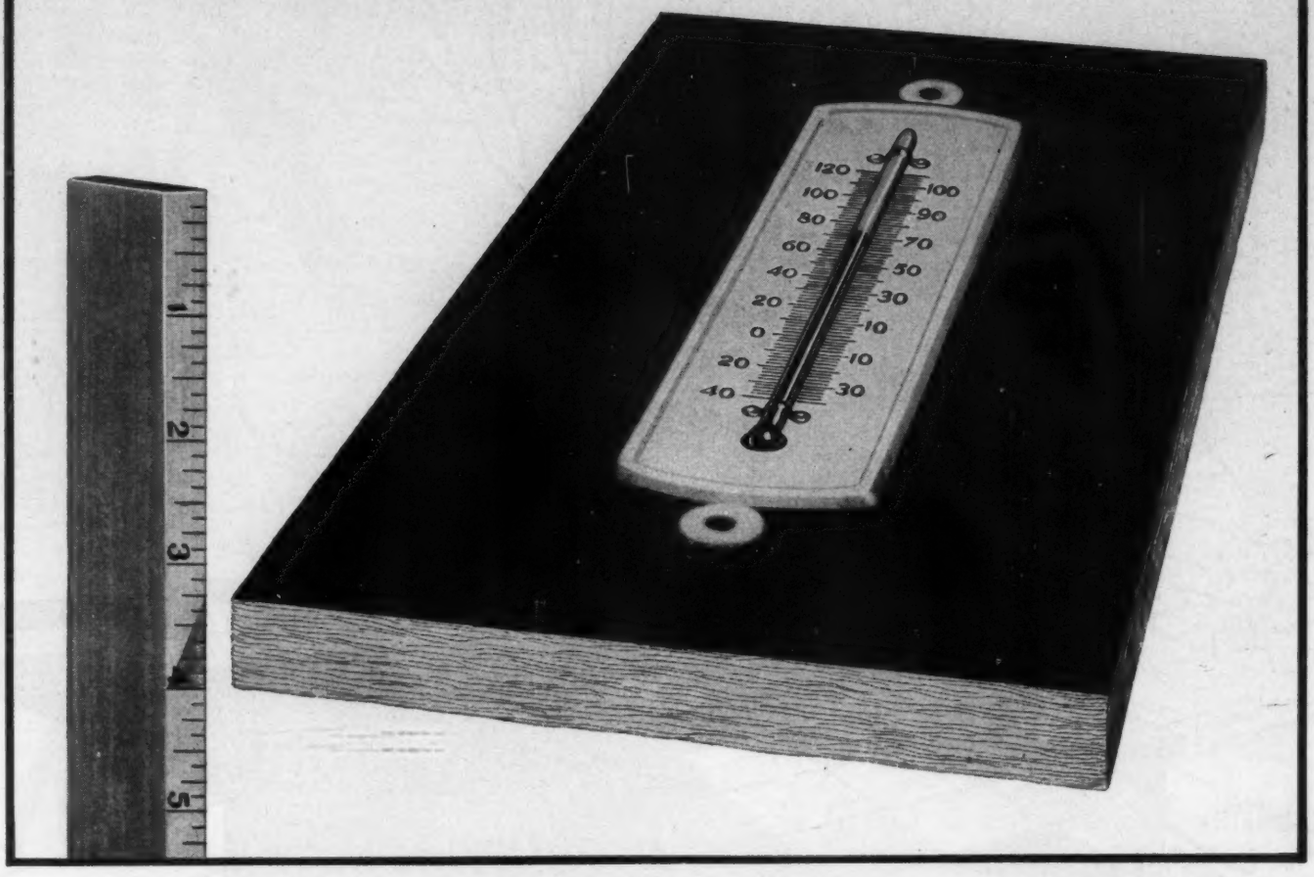
Vinyl tile made with Monsanto Opalon vinyl resin and Monsanto plasticizers is carried by most flooring contractors in scores of rich colors and patterns. Standard tiles are 9″ x 9″. Also available in 6″ x 6″ and 12″ x 12″ sizes. There are grades to meet all needs—vinyl-asbestos combination, felt or composition-backed vinyl, and 100% vinyl.

The finest tile for any floor is vinyl tile . . . and quality vinyl products are made of Monsanto Opalon vinyl resin.

MONSANTO

MONSANTO CHEMICAL COMPANY, PLASTICS DIVISION, SPRINGFIELD 2, MASS.

It's not thickness but thermal efficiency that counts



That's why more architects specify Fiberglas than any other roof insulation!

Once upon a time it was the practice of architects to specify roof insulation by thickness. Today, this practice is obsolete because only ¾-*inch* of Fiberglas* does the same insulating job as a *full inch* of most other materials. In addition to its exceptionally low "k" factor, Fiberglas Roof Insulation is fire-safe, dimensionally stable, rot-proof, moisture-resistant and resilient enough to withstand normal traffic loads without rupture. Its light weight and easy workability also save time and labor costs during application.

For complete technical data, see our listing in Sweet's File, or write either to one of the distributors listed below, or to Owens-Corning Fiberglas Corporation, Dept. 68-G, Toledo 1, Ohio.

Distributed East of the Rockies by

Certain-teed · FLINTKOTE · RUBEROID

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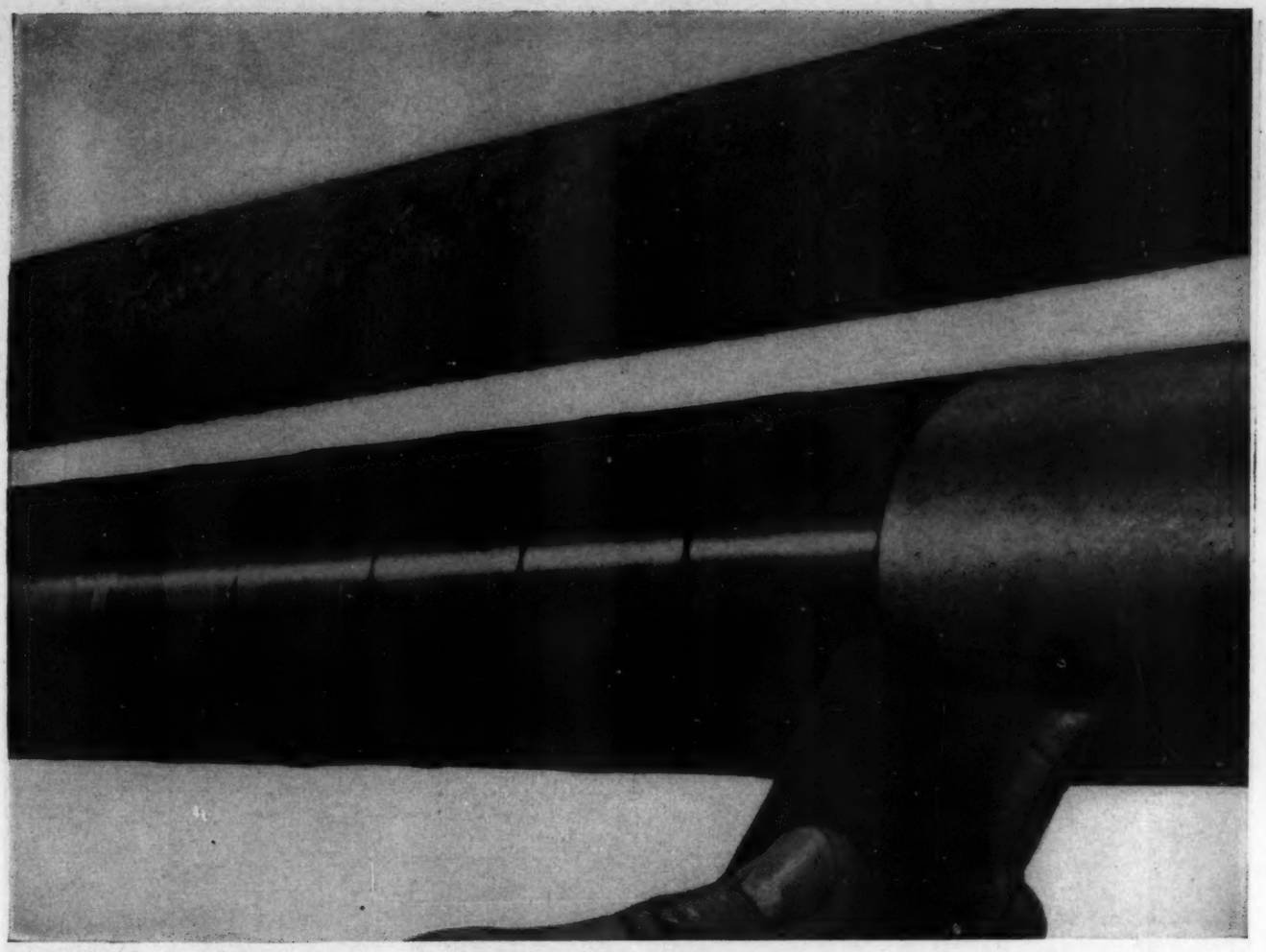
OWENS-CORNING FIBERGLAS

★Fiberglas is the trade-mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation.



Polyken® protective coating ends this costly pipe damage!

Compare these pipes to see how rugged* Polyken *Tape can beat corrosion, prevent loss for your clients

Corrosion damage costs the U. S. billions of dollars every year.

In some cases such loss can be controlled easily and economically—as it has been above—by the superior qualities of *Polyken* Protective Tape Coatings.

Polyken Protective Coatings are tough plastic adhesive tapes, manufactured from controlled raw materials under controlled conditions. Polyethylene backing and heavy adhesive mass offer high resistance to galvanic, water, and chemical corrosion.

Polyken Coatings are easy to apply as spiral wraps—go on right from the roll without heat, liquids, solvents, or thinners. They are self-sealing at the lap.

If your clients have corrosion problems involving cylindrical surfaces—pipes, conduits, tubes—you can provide a real service by recommending *Polyken* Protective Coatings.

Get free samples and full information by sending the coupon today.

Polyken®

CONTROLLED STRENGTH

PROTECTIVE COATINGS

Polyken Products Department of The Kendall Company

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Please send free samples and further information on *POLYKEN* PROTECTIVE TAPE COATINGS.

Name_____ Title_____

Company_____

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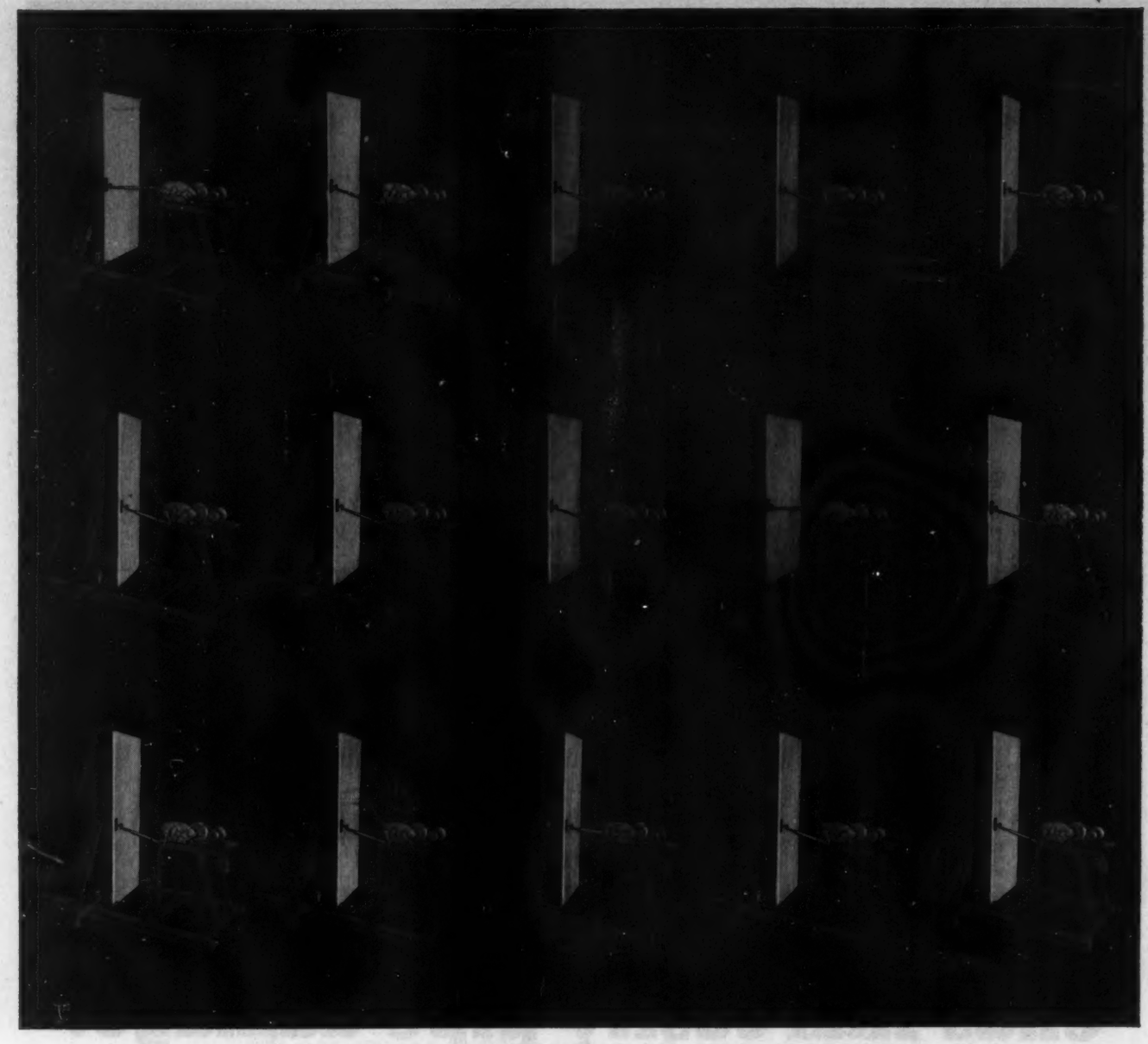

Slam...Slam...Slam...642,934 Times... But it couldn't faze a New Londoner door!

After slamming a Curtis New Londoner hollow-core flush door 642,934 times with their special slamming machine, the "torturers" got tired—but the door didn't! Banged 72 times per minute with a force of 192 foot-pounds per second—the equivalent of a lifetime of slamming—the New Londoner door failed to show the slightest injury.

What's the reason for this amazing stamina? It's the patented locked-in, all-wood gridlike core that keeps the Curtis New Londoner door hale and hearty through long years of use—eliminates warping and sagging—gives the owner more for his door dollars.

And that, in turn, is the reason why so many architects and builders consider these superior doors the mark of a better built home. And why, too, they are so widely used in schools, hospitals and other public buildings.

Curtis New Londoner doors and all Curtis Woodwork are sold by retail lumber and building-material dealers everywhere. For complete information, write Curtis Companies Service Bureau, Clinton, Iowa.

Curtis NEW LONDONER HOLLOW-CORE FLUSH DOORS

CURTIS WOODWORK

Heart of the Home

Architects: Clarence Torsell A.I.A. and William Carr A.I.A.

Tucson, Arizona, School System reports:

"GOLD SEAL RANCHTILE® IS ONE OF THE BEST FLOOR PRODUCTS WE HAVE EVER USED"

Read why architects, teachers, principals and maintenance men are so sold on Gold Seal Ranchtile that it has now been installed in 17 schools in Tucson—all built "on-grade."

Easier to maintain: Ranchtile is soil-resistant . . . more soil resistant and easier to maintain . . . than any other resilient tile. Also has great resistance to grease and staining.

Quieter, more comfortable underfoot: Reduces classroom noise levels to a minimum. Teachers report much less fatigue than from hard, clattery tile.

Beautiful colors: Ranchtile comes in 2 design groups with 15 beautiful colors, clear and bright. Its beauty has made it a favorite for ranch-type homes all over the country.

Resists indentation: Ranchtile has exceptional resistance to permanent indentation from chairs and desks . . . and has amazing resistance to the abrasion of constant foot traffic.

Economical: The initial cost is less than that of most other floorings suitable for on-grade installation. Any difference in initial cost is more than compensated by the low maintenance cost and long life of Ranchtile.

Specifications: Ranchtile—a Gold Seal exclusive—is the only inlaid linoleum that may be installed over on-grade concrete subfloors—with or without radiant heating. It may *also* be installed over suspended concrete subfloors. Standard gauge, 9" x 9" tile. 15 beautiful patterns. Approved for use in schools, homes, motels, and churches. For illustrated brochure write: Architects' Service Dept., Congoleum-Nairn Inc., Kearny, N. J.

For home or business...
you get the finest choice of all in...

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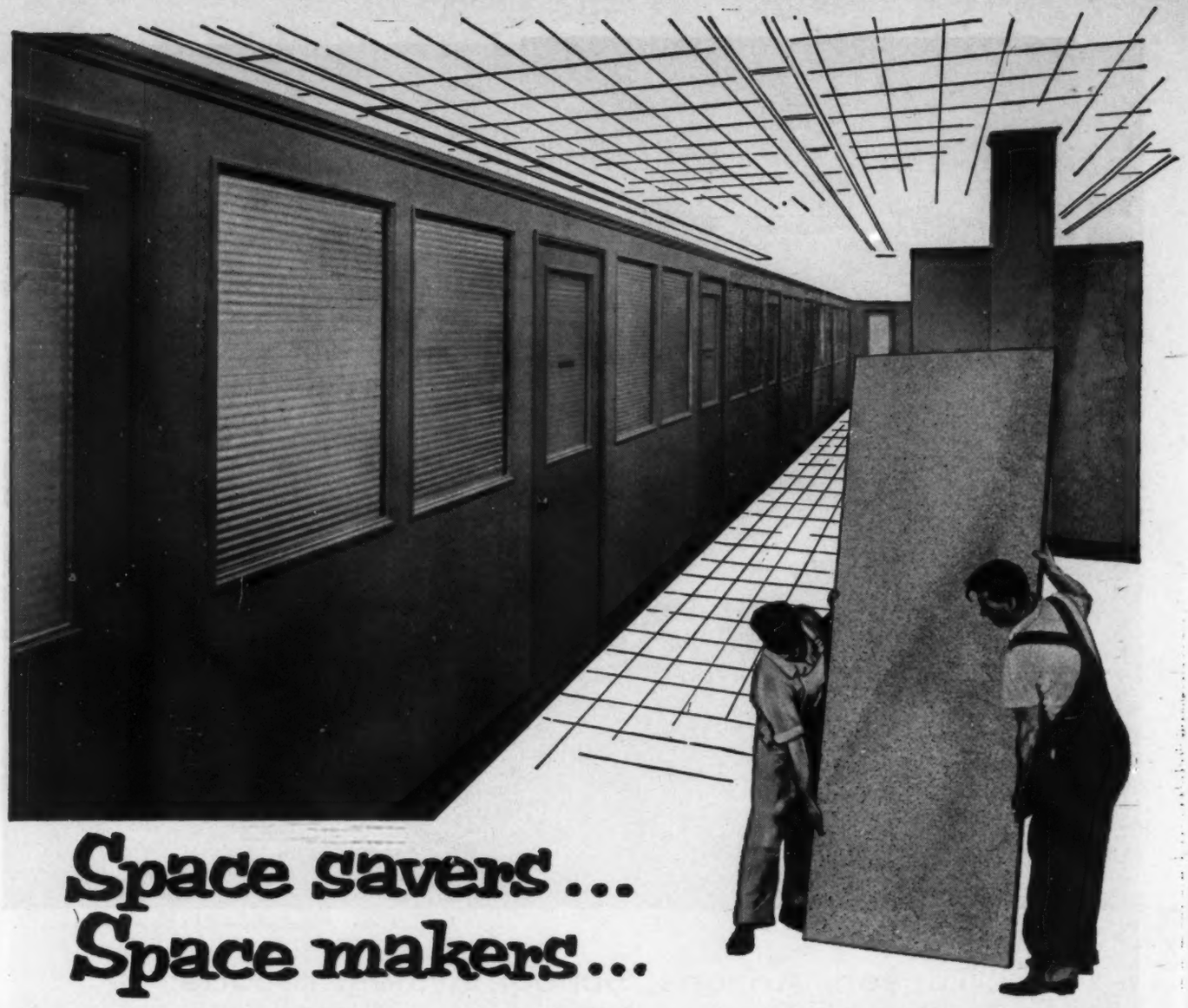
GOLD SEAL
FLOORS AND WALLS
CONGOLEUM-NAIRN INC., KEARNY, N. J.



Space savers... Space makers...

J-M Class A Asbestos Walls are movable . . . save space and make space . . . are noncombustible, moderately priced . . . come in pleasing colors

New Johns-Manville Class A Movable Walls offer you advantages never before combined in an asbestos movable wall. They are modestly priced. They are noncombustible. They have a textured, stipple finish in restful colors. They reduce maintenance and relocation costs to a new low.

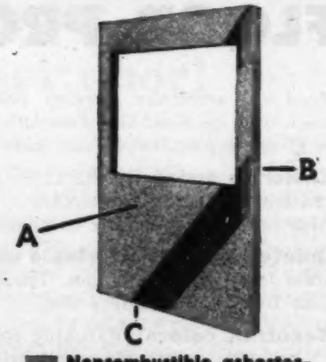
The finish of Class A Movable Walls is a tough, hard film many times thicker than on the usual movable partition. It is mar and scratch resistant . . . rejects stain and soil . . . can be easily washed and even scrubbed, if necessary. If damaged, it can be touched up inexpensively to look like new . . . and, unlike other types of factory-finished partitions, can be repainted with ordinary paint.

Undivided responsibility for a complete job

These flush or glazed partitions are erected by the Johns-Manville Construction Department complete with doors, door hardware, glass and trim.

• • •

For details about J-M Class A Asbestos Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Department AR, New York 16, New York. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario,



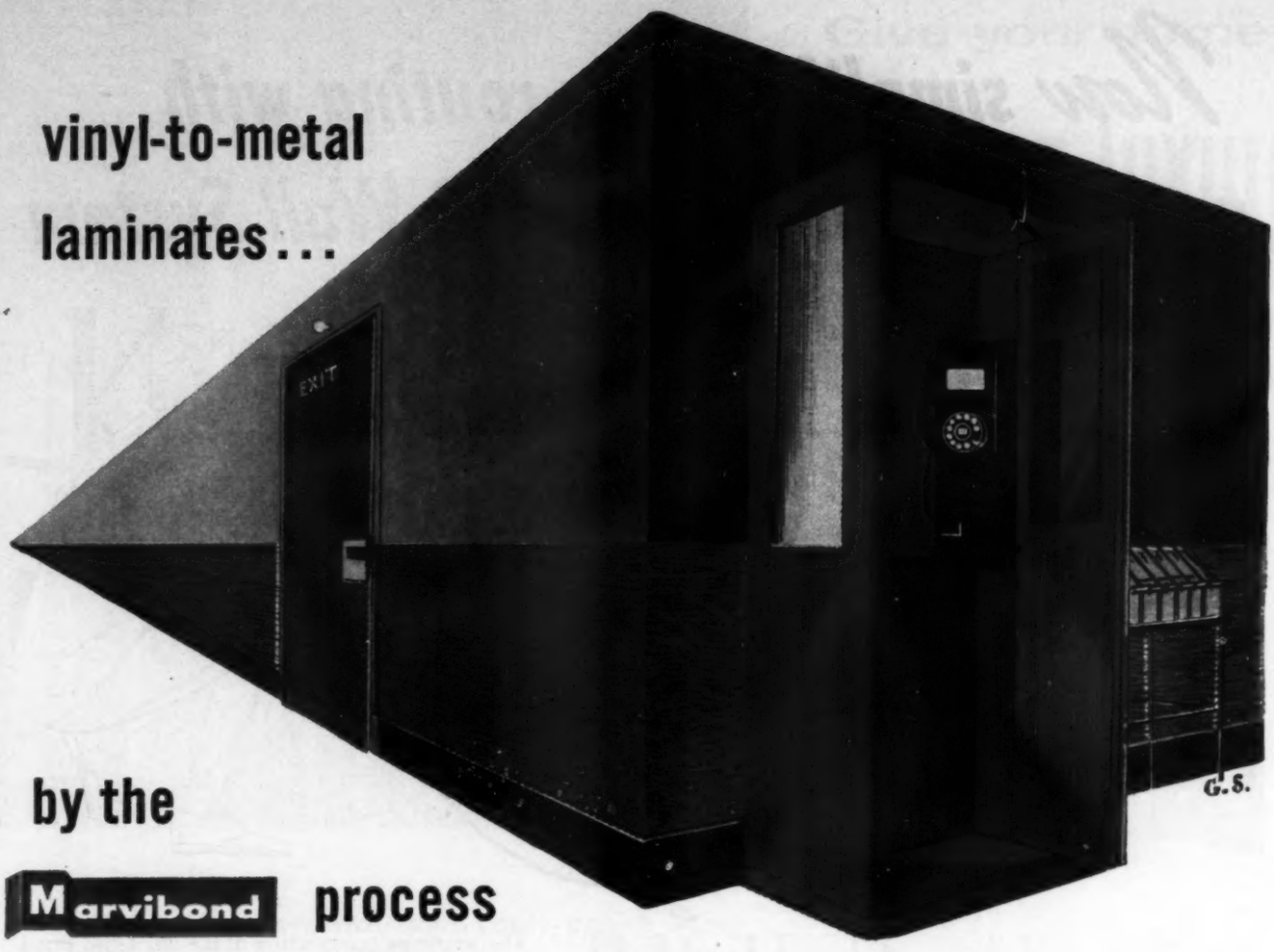
A Noncombustible asbestos-cement surfaces

B Generous reinforcing for added strength

C Noncombustible all-mineral insulating core

JOHNS-MANVILLE JM PRODUCTS **Johns-Manville**

vinyl-to-metal laminates...



by the Marvibond process

for beauty and practicality in a building material

The Clad-Rex Steel Co., Denver, Colorado, produces vinyl-metal laminates for wainscotting. Scuff-proof and rust-proof vinyls are being permanently united with steel and aluminum, by Clad-Rex with the Marvibond process, at a rate of 4,000 sq. ft. an hour.

The permanent union of vinyl to metal binds the practical qualities of vinyl to the structural strength of metals for refreshingly unique and strikingly decorative effects... before fabrication.

Practically any surface effect can be achieved by the Marvibond process. Smooth or matte finishes, leather-like grains, marble patterns, prints, weaves, and sculptured effects are not only possible but *economical.* Marvibonded metal will not chip, crack, or craze... is far superior to paints, lacquers, varnishes, phenolic and alkyd finishes... and can be formed with standard metal working tools.

This wedding of specially formulated vinyl film and sheeting to metal by Naugatuck's Marvibond* process, before the product is formed, eliminates expensive finishing operations... reduces first costs... minimizes maintenance expenses... provides color harmonies and effects as practical as they are beautiful.

Why not consider the use of Marvibonded laminates for industrial, commercial, and residential applications...for wainscotting, phone booths, showers, fireproof doors, paneling, mobile office partitions, etc.... *wherever* sheet metal, with a beautiful, but practical, finish can be utilized.

For samples and technical information, write to us on your company letterhead, TODAY.

* Patent applied for

Naugatuck Chemical

Division of United States Rubber Company
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US RUBBER

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia • IN CANADA: Naugatuck Chemicals, Elmira, Ontario
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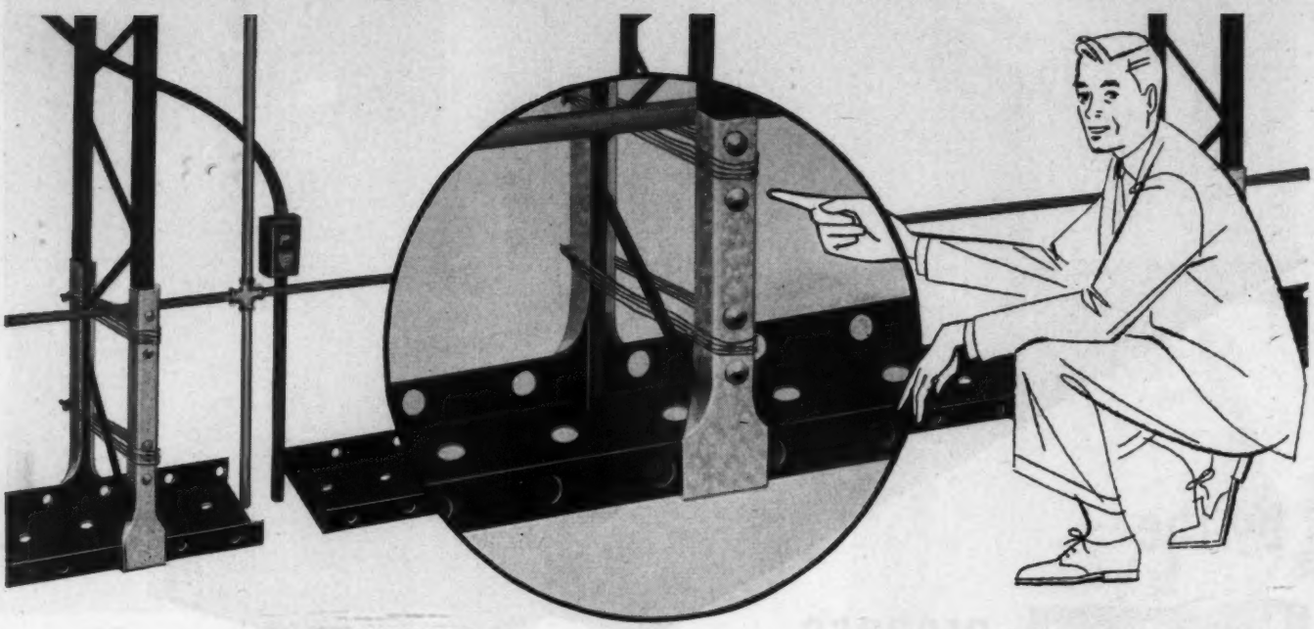
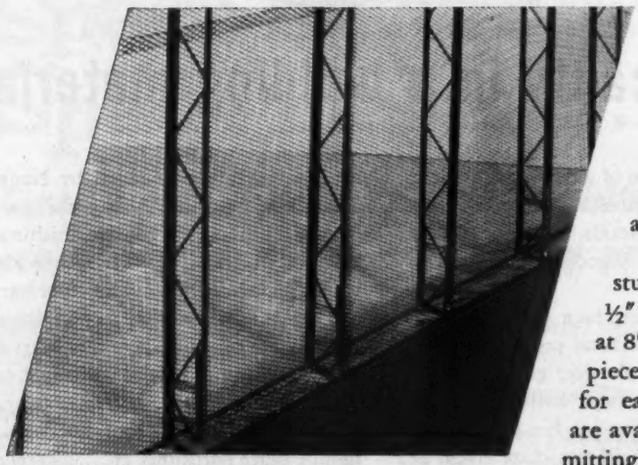
Now simplify utility routing with new Gold Bond HOLOSTUD Wall System





Gold Bond Holostuds can be put up simply and quickly. All connections are made easily with wire ties. Ordinary lather's tools are all that is required to erect the entire Holostud Wall System.

The strut-type construction of the *new* Gold Bond Holostud provides more room for ducts, plumbing and electrical conduits. This non-load bearing partition system is especially designed to facilitate vertical or horizontal routing of utilities. Has excellent fire, sound, and shock resistant properties. Goes up fast, has exceptional strength and rigidity. Adaptable to either metal lath or gypsum application.

The system is composed of prefabricated steel studs, tracks and shoes. Studs are fabricated with ½″ x ½″ angles securely braced by struts welded at 8″ intervals. Floor and ceiling tracks are one-piece channel-shaped units with ½″ legs, perforated for easy lath attachment. Gold Bond Holostuds are available in 2½″, 3¼″, 4″ and 6″ widths, permitting use of the system in four different partition thicknesses.

Complete technical data is available on new Gold Bond Holostud Wall System. Write:

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Build better with **Gold Bond** . . . METAL LATH AND PLASTER

Give your homes

cooling luxury at lowest cost

with a Hunter Attic Fan

One easy-to-install unit cools entire home

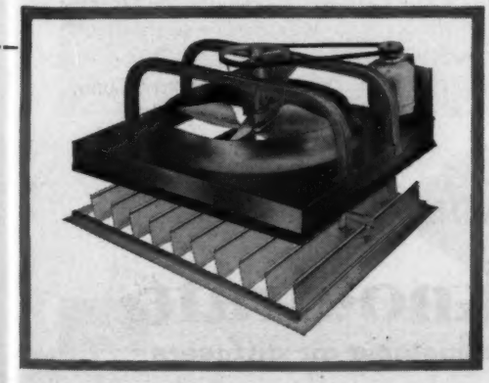
You can now provide all the luxury of a cooling system that fills an entire home with refreshingly cool air—at a very low investment per house.

The Hunter Package Attic Fan is as efficient as it is economical. Quietly pulling in fresh, outdoor breezes as it forces out hot, sticky, inside air, the Hunter will cause room temperature to quickly drop from 10 to 20°.

Easiest of all attic fans to install, the Hunter requires no replastering, repainting, suction box or other "extras" for installation or maintenance.

The compact fan unit rests on the attic floor. Ideal for even low-pitched roofs, the Hunter needs only 18″ to 26″ attic clearance. The "flush-mounted" automatic ceiling shutter (shown above) screw-fastens over ceiling opening, fits narrow hallways. Its eggshell finish blends with all interior colors.

Guaranteed Performance: the Hunter fan unit is guaranteed for five years; motor and shutter for 1 year. Costs only a few cents a day to operate. Only $137.60 list for the 5,000 CFM model, the Hunter is available in four sizes, with certified air deliveries to 16,000 CFM.



See our catalog in Sweet's File . . . $\frac{28e}{Hu}$

Hunter Attic Fan

Hunter SINCE 1886

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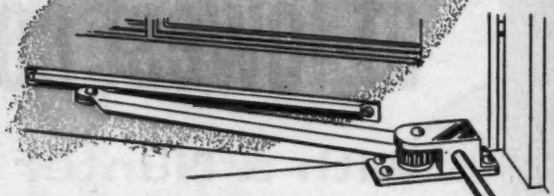
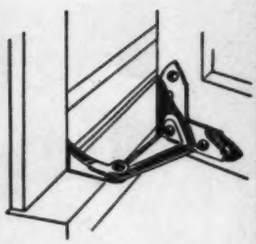
Casement Window Hardware



NO. 61 CASEMENT OPERATOR

Provides smooth, noiseless operation. Wrought steel housing. Bronze spring holds slide shoe firmly against slide, prevents rattle. Crank inserts into bronze worm 1⅛", eliminating wobble when window is opened or closed. When screen is in place, operator is concealed. Easy to install. Reversible.

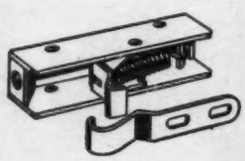
Sterling HARDWARE



NO. 190 EXTENSION HINGES

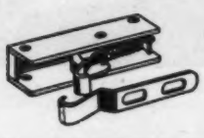
- Provide 4" of space through which outside of sash can be easily reached for cleaning.
- Give better ventilation. Wind is deflected into room from both sides of sash.
- Support sash at corners, prevent sagging.

STERLING AUTOMATIC PULL-TITE CLOSERS



NO. 165 FOR CASEMENT WINDOWS AND CLOSET DOORS

Overcomes warping of sash and resistance of tightly fitted weatherstrip. Pull adjustable from 4 lbs. to 8 lbs. Reversible. Easy to install.



NO. 155 FOR CABINET DOORS

Gentle push on door closes it firmly without rebound. Pull is 4 lbs. Reversible. Easy to install.

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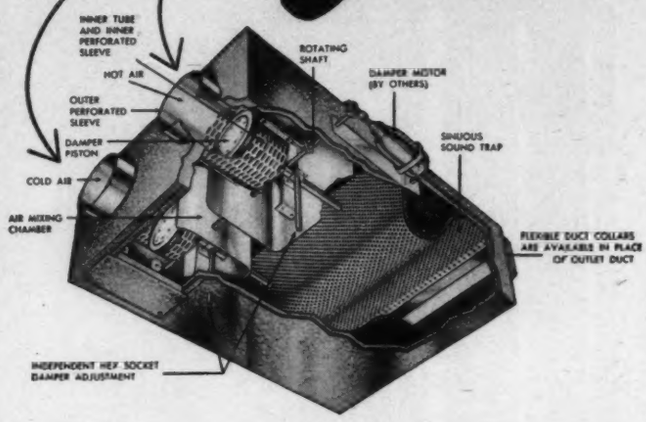
DUAL DUCT



HIGH PRESSURE DIFFUSERS
...how they work

Kno-Draft Dual Duct Air Diffusers are designed for central station high pressure systems where precise automatic compensation for fluctuations in inside and outside loads is required.

Warm and cold air are supplied through two separate ducts to a mixing chamber, which equalizes temperatures throughout the combined air stream. The outer perforated sleeves of the inlet dampers are operated by a thermostat-governed motor. They act simultaneously to control the proportion of warm and cold air and the delivered air temperature. In addition, each inlet tube has a damper piston which is adjusted separately for the different static pressure in each duct.

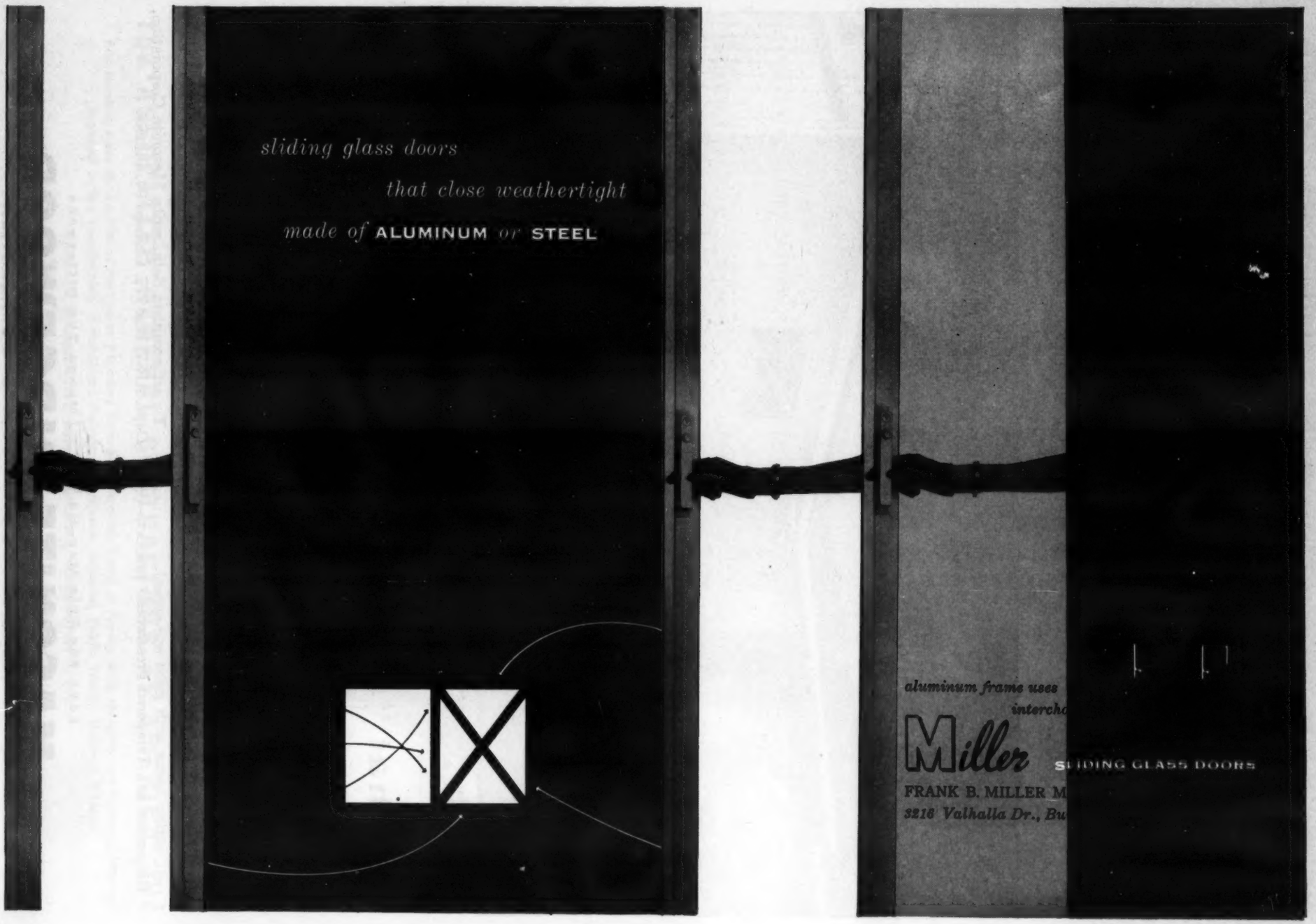
For example, the illustration shows a Kno-Draft Dual Duct High Pressure Valve with inlet dampers set for 50 per cent warm air and 50 per cent cold air. Static pressure in the warm duct is 3 in. wg; in the cold duct, 2 in. wg. So damper pistons have been individually adjusted to compensate for this difference. Fewer rows of perforations are exposed for warm air flow than for cold, keeping maximum warm and cold air volume equal and total air delivery constant.

For a more detailed explanation of Kno-Draft High Pressure Air Diffusers—both single and dual duct—write, on your letterhead, for a copy of Bulletin K33, an authoritative textbook on high pressure air distribution systems.

Connor Engineering Corporation, Dept. E-75, Danbury, Conn.

CONNOR ENGINEERING CORPORATION

kno·draft®
adjustable air diffusers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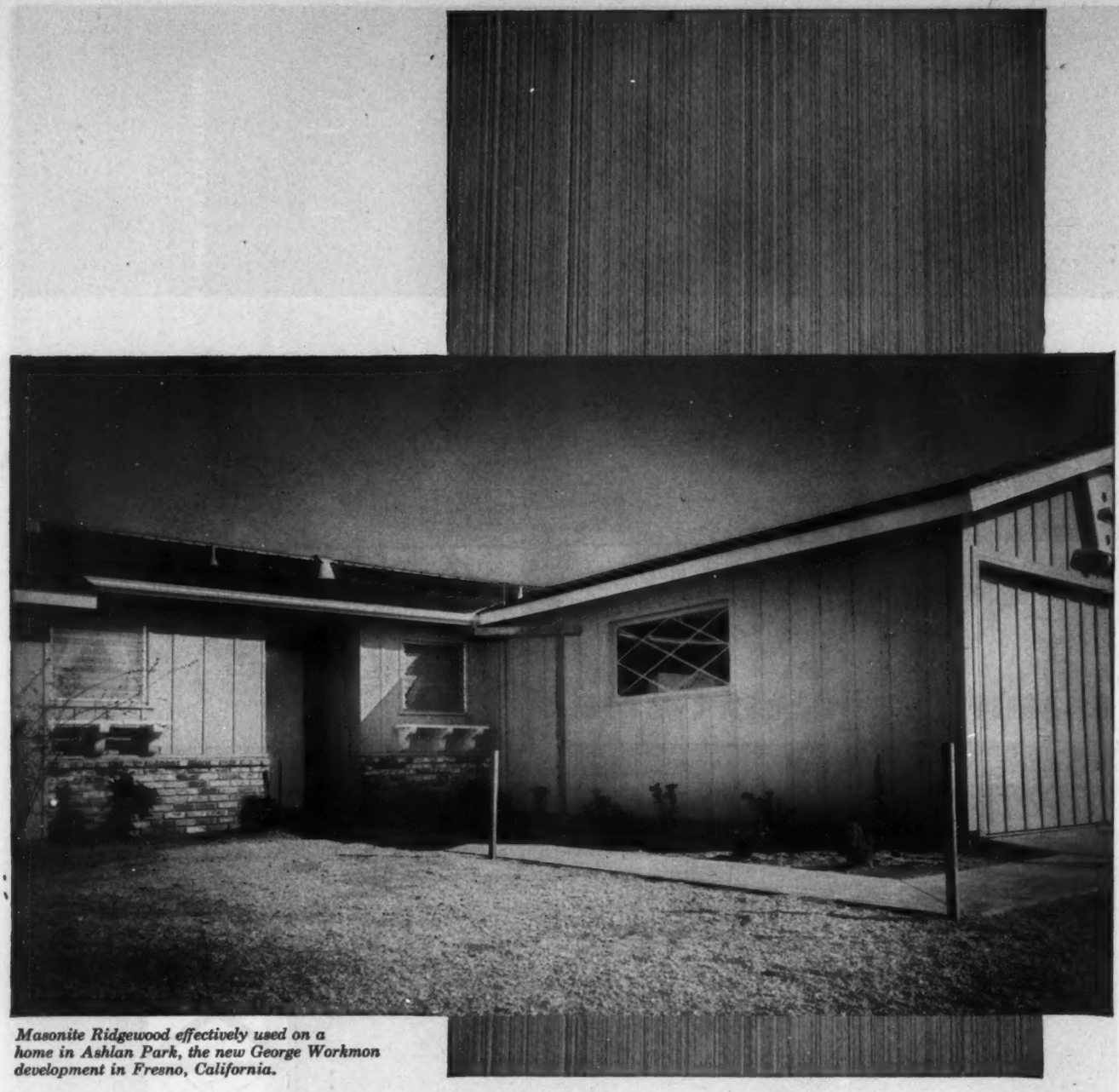

Masonite Ridgewood effectively used on a home in Ashlan Park, the new George Workmon development in Fresno, California.

For that "satin luster look"– choose new MASONITE RIDGEWOOD

Here's a new way to add design interest to your exteriors. Use Masonite's new Ridgewood, the hardboard panel with a combed, textured surface.

Use it as a distinctive vertical panel, with or without battens as a novel and pleasing variation in horizontal siding, or as a non-splitting shingle. Painted, it reveals a rich, satiny luster with great eye-appeal.

Ridgewood is a Tempered Presdwood® product—¼" thick—with all the paintability, weather resistance and firm protection these famous panels are noted for. Wide 4′ panels mean fewer joints—and the textured surface makes joints almost invisible.

Idea: Ridgewood for dramatic interior walls in homes, offices and commercial buildings.

To get complete data, write Masonite Corporation, Dept. AR-7, Box 777, Chicago 90, Illinois.

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YOU can depend on top performance with genuine Dur-O-waL on the job. Electrically welded of high tensile steel, Dur-O-waL works fast, lays flat to combat cracks in brick, block, or tile masonry. Dur-O-waL's patented trussed design keeps side rods working together; put more steel in the wall economically. Increase sales and customer satisfaction the proven Dur-O-waL way. Demand Dur-O-waL . . . available everywhere.

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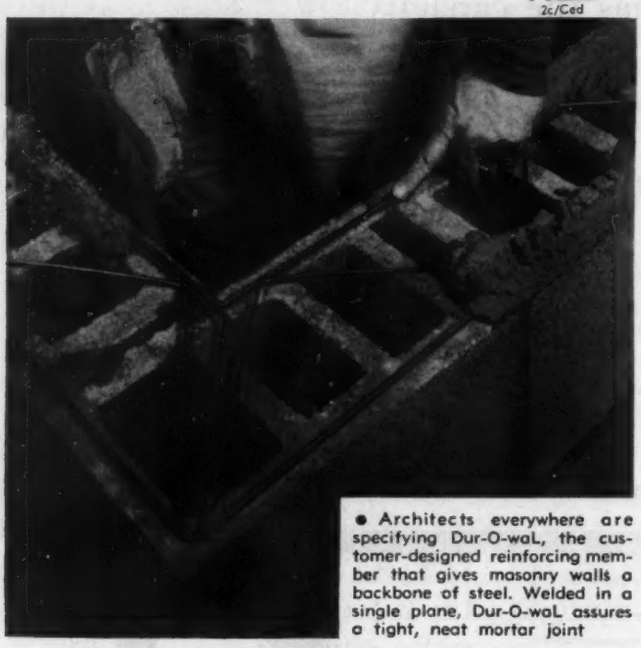

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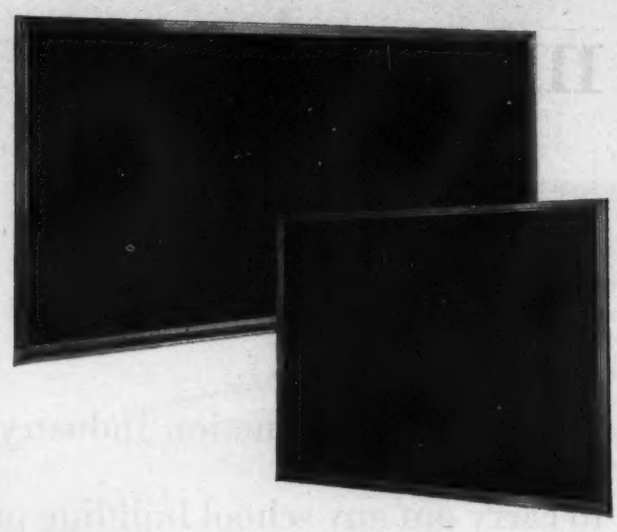


Rowles

MODULAR

CHALKBOARDS and CORKBOARDS

- ***Interchangeable***
- ***Demountable***
- ***Semi-adjustable***
- ***Portable***

Units that can be adjusted or re-arranged to fit the classroom, grade or teaching needs

Here's an entirely new concept of the use of chalkboards in today's modern classroom.

Rowles MODULAR CHALKBOARDS AND CORKBOARDS enable you to provide a chalkboard-corkboard pattern to suit the needs of the particular classroom. The pattern is selected to meet the needs of the class according to the grade, the subject and the teaching method of the instructor.

Rowles MODULAR CHALKBOARDS AND CORKBOARDS are a group of easy-to-handle, pre-assembled, units, designed on the modular principle, that can be easily installed on any wall, moved, interchanged, adjusted, or removed and stored as conditions require.

This modular interchangeable feature gives every classroom a new kind of flexibility. It makes every room a true "all-purpose" room with unbelievable versatility.

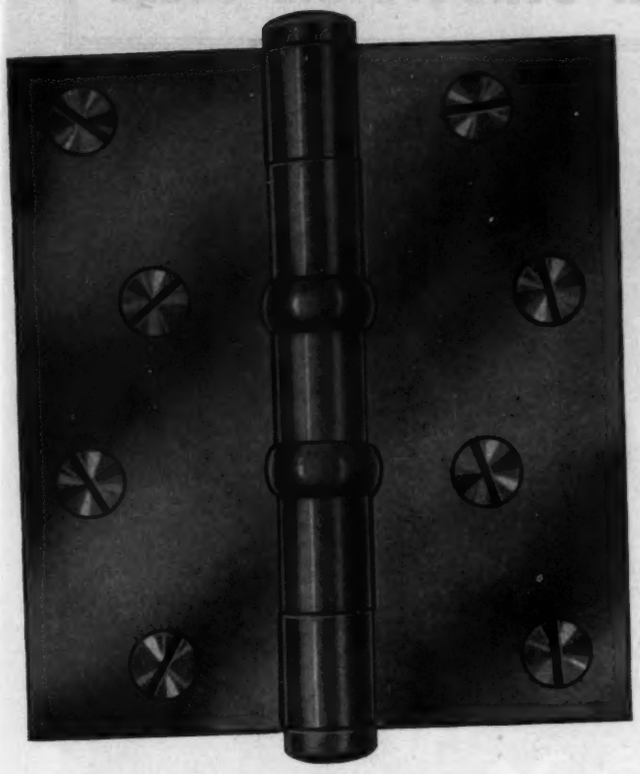
Rowles Modular Chalkboards and Corkboards are available in standard-sized, modularly dimensioned units, each unit pre-assembled and shipped ready to hang. All are made with famous Rowles Endurarec Chalkboard and Rowles PermaKork and framed with attractive aluminum molding. A choice of See-Green or standard black is available.

WRITE FOR COMPLETE DETAILS on this new line of Rowles Modular Chalkboards and Corkboards. Ask for illustrated literature showing details, sizes, etc.

E. W. A. ROWLES COMPANY

Arlington Heights, Illinois

The Narrow Width Hinge



Efficiency Plus Beauty

The narrow width hinge is swinging more and more flush doors in all kinds of buildings. It brings the hinge barrel close to the jamb for fine appearance, and the pivot closer for less strain on the jamb and better door operation.

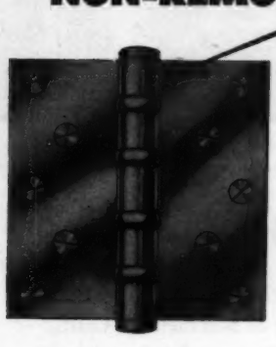
The hinge shown here is a Stanley Ball Bearing Hinge (BB180 — Polished Brass — 4½ x 4 inches). Other Stanley Narrow Width Hinges are available — template and non-template — brass, bronze, steel, aluminum and stainless steel — ball bearing, full jeweled ball bearing and plain bearing — in all finishes.

FULL JEWELED® BALL BEARING HINGE

The Finest Hinge You Can Specify for heavy doors or doors with high frequency service. Permanently lubricated ball bearings — radial thrust bearings which shoulder the load for effortless, dependable operation for the life of the building.

The Full Jeweled Ball Bearing Hinge is available in all metals, sizes and finishes for every application.

NON-REMOVABLE PIN (NRP)



This non-removable loose pin feature is accomplished by set screw in barrel which prevents pin removal when door is closed. Government approved for exterior doors opening out, the NRP feature adds extra security to valuable property within schools, office buildings, etc., at a slight extra cost.

REMEMBER THREE HINGES TO A DOOR

Send for your copy of the 1955 Stanley Hinge Guide. Write Stanley Hardware, 167 Lake St., New Britain, Conn. It's free, of course, and contains full details on the complete line of Stanley Hinges. Specify Stanley, and be sure.

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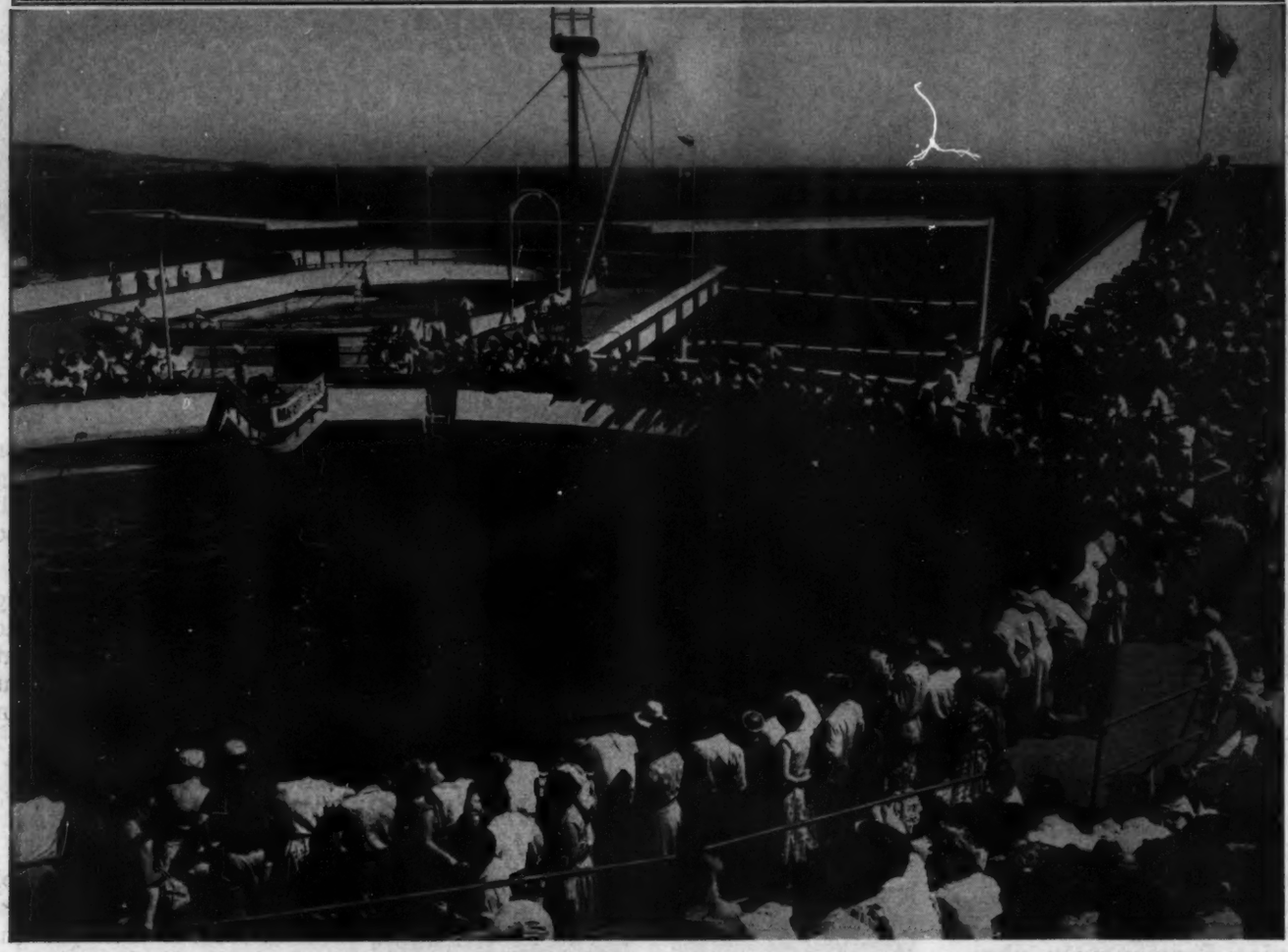

Architects and engineers for the oceanarium were Pereira and Luckman, of Los Angeles; general contractor was George A. Fuller Co., New York and Los Angeles. The framework of Bethlehem structural steel was fabricated and erected by Pacific Iron and Steel Co., also of Los Angeles.

World's Largest Oceanarium

Sharks, giant rays, porpoises and other deep sea dwellers are on view at the new oceanarium at Marineland, Calif., on the Palos Verdes Peninsula. Built on a framework of Bethlehem structural steel the new oceanarium, called "The Marineland of the Pacific," has two deep-water tanks of 600,000 and 500,000 gal capacity. Three bands of viewing windows at three levels below the surface allow glimpses of some 5000 species of fish. Ocean water is pumped into the two big tanks at the rate of 2000 gal per min. In addition there are smaller displays, such as an underwater coral reef and its denizens, and an octopus grotto. Refrigeration and heating plants maintain greatly varying water temperatures for different species.

Bethlehem structural steel was left exposed and painted in pastel colors to achieve this unique architectural effect.

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On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

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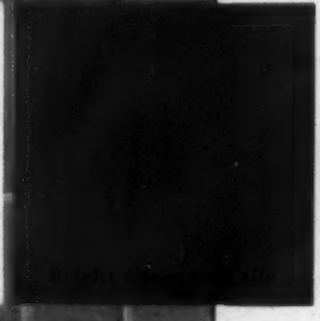
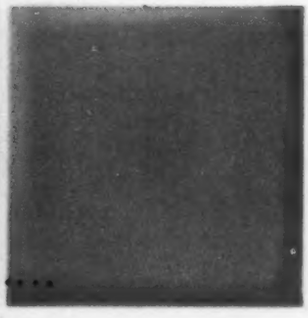
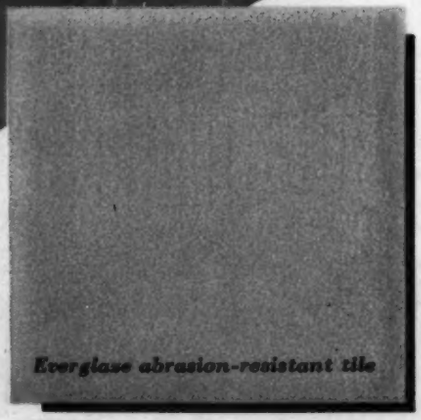
Harmonitone satin-matt glazed wall tile

All-Tile Accessories







Everglaze abrasion-resistant tile

In addition to the glazed tile illustrated, you'll want complete data on the only complete ceramic tile line. Ask your Mosaic Representative or write The Mosaic Tile Company, Dept. 30-28, Zanesville, Ohio, for these new Mosaic tile books: (A) The Mosaic Workbook for Architects; (B) The Mosaic Tile Book of Beautiful Homes; (C) The Mosaic Products Catalog. And, our catalog is in Sweet's.

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FACTS ABOUT Exide®
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WRITE IN
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IN PUBLIC BUILDINGS THE SPOTS SHOWN REQUIRE THE INSTANTANEOUS AND AUTOMATIC EMERGENCY LIGHTING PROTECTION ASSURED BY EXIDE EMERGENCY LIGHTING SYSTEMS. THESE SYSTEMS ARE A POSITIVE SAFEGUARD AGAINST THE POSSIBILITY OF SUDDEN DARKNESS CAUSED BY AN INTERRUPTION OF NORMAL POWER. BY WRITING IN EXIDE PROTECTION IN YOUR SPECIFICATIONS, YOU CAN WRITE OUT ***PANIC-INJURIES-PROPERTY DAMAGE.***

HERE'S A BRIEF SUMMARY OF BUILDING LOCATIONS AND THE EMERGENCY LIGHTING PROBLEM INVOLVED.

FIRETOWERS — WHEN ELEVATORS STOP, STEPS MUST BE LIGHTED.
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CORRIDORS — SPEED SAFE AND ORDERLY EXIT OF PEOPLE, AVOID ACCIDENTS.
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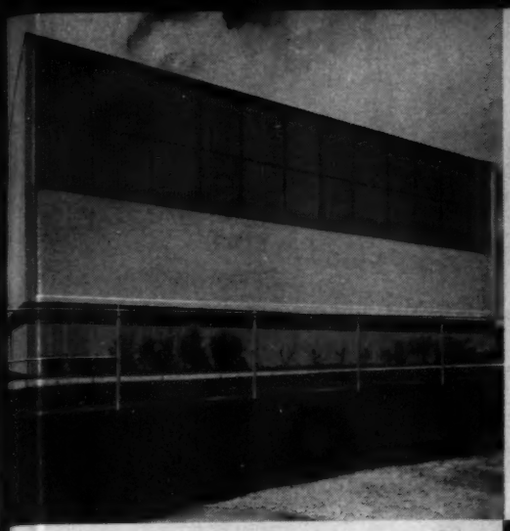
EXIDE PROVIDES 2 WAYS FOR POSITIVE EMERGENCY LIGHTING PROTECTION

① A PERMANENT EXIDE INSTALLATION (32 OR 115 VOLTS) CONSISTS OF A BANK OF LONG-LIFE, EASY TO MAINTAIN EXIDE BATTERIES, WITH EXIDE AUTOMATIC CONTROL TRANSFER SWITCH UNITS. CAN BE ADAPTED TO MEET NEEDS OF A SINGLE BUILDING, OR MULTIPLE UNITS. (UL) APPROVED.

② TIE-IN PORTABLE EXIDE LIGHTGUARDS® CAN SUPPLEMENT EXISTING FIXED SYSTEMS. CAN BE EFFECTIVELY USED IN OLD AND NEW BUILDINGS TO PROTECT ALL CRITICAL AREAS. (UL) APPROVED.

FOR HELP IN DETERMINING WHAT TYPE OF SYSTEM YOU NEED (6, 32, OR 115-VOLT), AND COMPLETE SPECIFICATIONS: ① CALL AN EXIDE SALES ENGINEER FOR FULL DETAILS. ② WRITE FOR FORM 4808 DESCRIBING LIGHTGUARDS, AND FORM 4721 ON PERMANENT INSTALLATIONS.

Exide INDUSTRIAL DIVISION. The Electric Storage Battery Company, Philadelphia 2, Pa.



OWENS-ILLINOIS GLASS BLOCK* PANELS daylight this huge gymnasium... INSULATE LIKE AN 8" WALL

Gymnasium at Northeastern University, Boston, Massachusetts. Shepley, Bulfinch, Richardson and Abbott, Architects. Volpe Construction Company, Contractor.

Panels of Owens-Illinois light-directing Glass Block provide even distribution of daylight throughout the gymnasium area. They eliminate "hot spots," glare and harsh contrasts.

The insulating efficiency of glass block makes designs like this possible. Glass block permit use of large glass areas without excessive heat loss.

BECAUSE Owens-Illinois Glass Block insulate as effectively as an 8" thick brick wall, huge expanses of glass block are practical even in a cold climate.

Glass block are strong and hard to break—perfect for a gymnasium use like this. They need no maintenance—perfect when panels are put in inaccessible places.

The complete Owens-Illinois Glass Block story is yours for the writing. Send for it and see how glass block can mean better sight, better light, lower maintenance and great new design freedom in school planning. Address Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AR-7, Toledo 1, Ohio.

Formerly known as INSULUX

OWENS-ILLINOIS GLASS BLOCK
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

New Smooth Fins
Wide base provides ample contact surface. Smooth fins can be closely spaced without increasing resistance.

Old Type Fins
Crimped to provide necessary contact surface, widely spaced to reduce air friction.

NEW *Smooth-Fin* Aerofin Coils for Greater Capacity— Lower Resistance

Aerofin extended-surface heating and cooling coils now offer you an even greater area of effective surface — even greater capacity — per square foot of face area. Airway resistance is lowered; higher air velocities can be used. The result is extremely high heating or cooling capacity in a given space.

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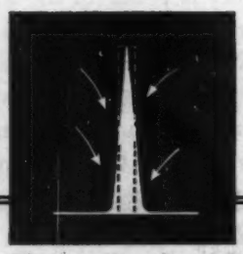

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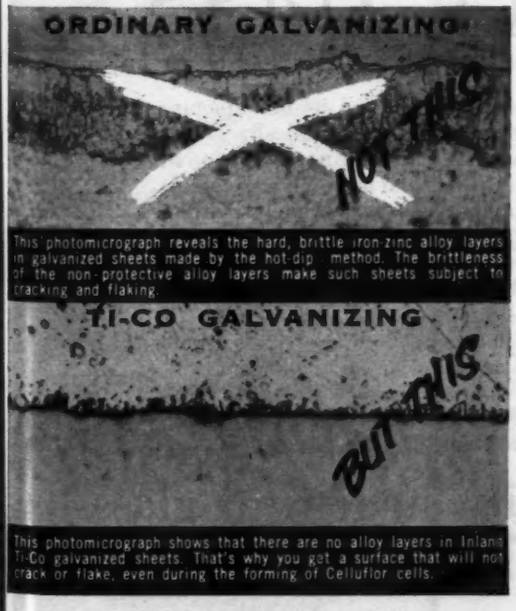
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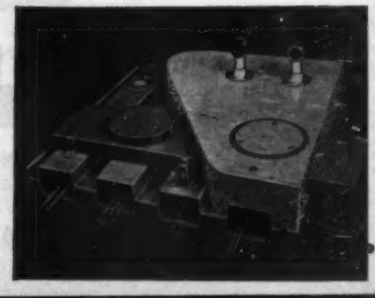

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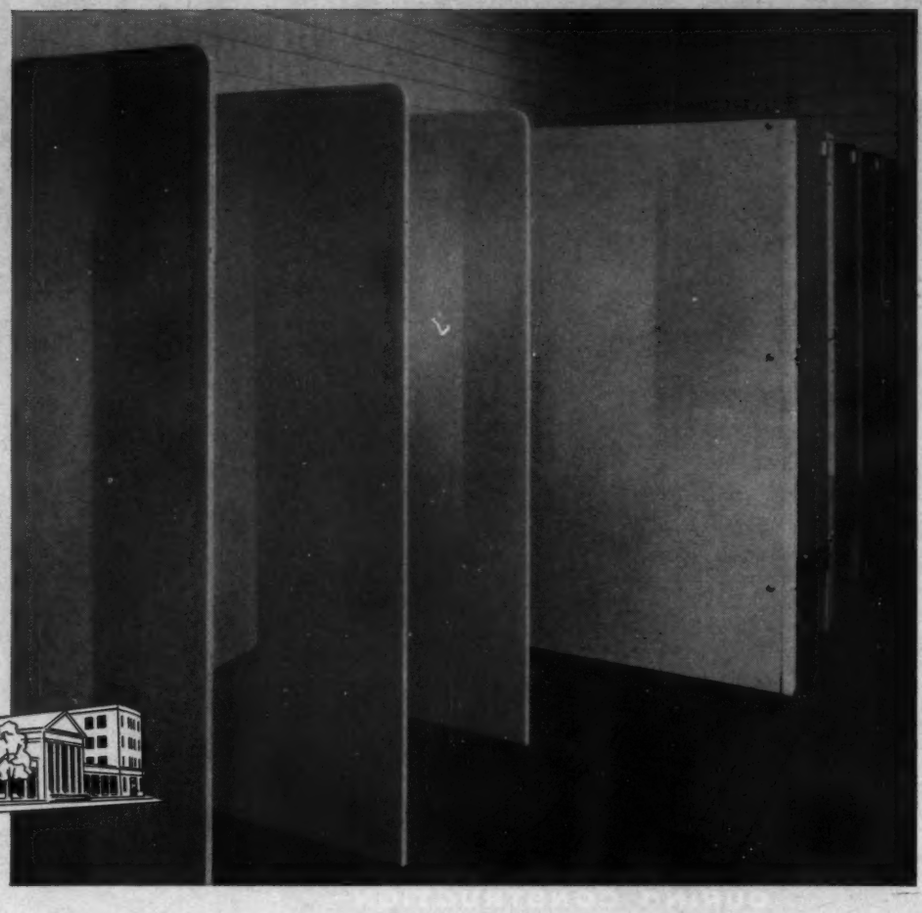

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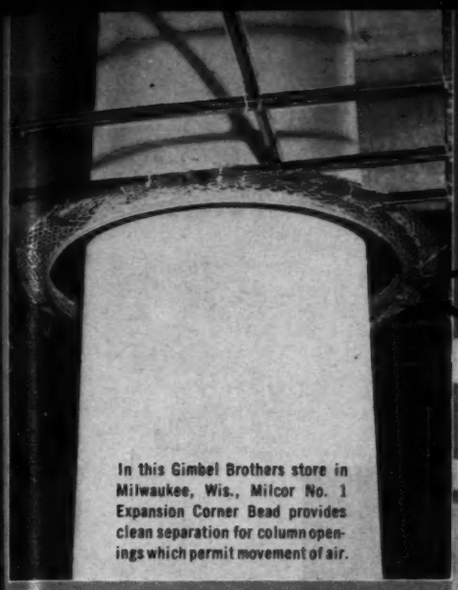

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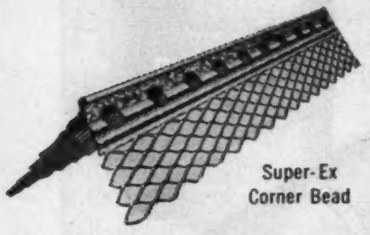
GENERAL CONTRACTOR	Hunzinger Construction Co. Milwaukee
PLASTERING CONTRACTORS	Paul C. Baumann, Milwaukee
	John E. Gregory & Son, Inc. Milwaukee
	Alfred Schmitt, Inc. Milwaukee



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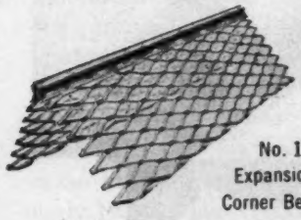

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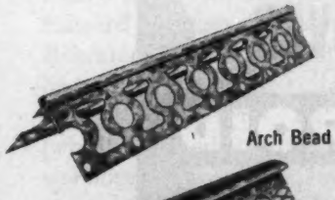
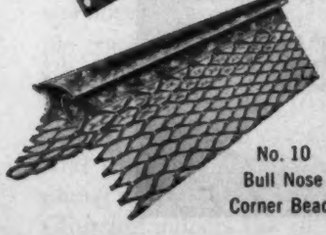


Arch Bead



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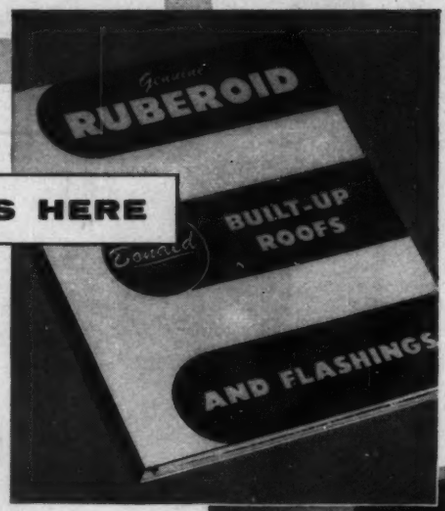

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THE OPAL ON THE CHARLES

By Edward Weeks, Editor, The Atlantic Monthly

THE Massachusetts Institute of Technology to whom one looks for the latest word in science has just unveiled the latest novelty in the field of the humanities. The Kresge Auditorium, a festival hall on the banks of the Charles River, the gift of the Kresge Foundation, will have a lasting effect on the life of the Institute; with its combination of little theatre, large concert-hall-auditorium and rehearsal rooms, each beautifully self contained, it will call forth such a yearly program of drama, music, speaking (and television) as M.I.T. has never participated in before.

Every university in the country ought to possess these facilities and few do. The closest Harvard ever came to having a little theatre of its own was in the early 1920's when Workshop 47 under Professor George Pierce Baker was attracting budding playwrights like Edward Sheldon, Eugene O'Neill, Philip Barry, S. N. Behrman and Sidney Howard to Cambridge. Baker had raised the money — his little theatre would have cost $150,000 then — but President Lowell would not permit the funds to be collected; he thought there were worthier projects. So Harvard has no stage. When people come to hear Mr. T. S. Eliot deliver the Charles Eliot Norton Lectures they crowd — those who get there early enough — into the musty cheese box of the New Lecture Hall (new when I was in short pants). And when Harvard gathers to hear the Boston Symphony or to confer an Honorary Degree on Sir Winston Churchill indoors the audience stuffs itself into Sanders Theatre, a theatre in name only, which looks like an Elocution Room designed by the inventor of the jigsaw. You never saw such fretwork, and that is all you see; the light is dim, the seats hard. Only the hearing is good. If you detect envy in these remarks, it is there all right, for speaking as a Harvard man this is only one of several instances where I had admired and envied the initiative of M.I.T.

The most memorable feature of M.I.T.'s architecture is the great, central cement dome rising above the massive walls and softly illuminated by night. When Bostonians look westwards across the Esplanade this is what they see. It was a national novelty when it was built in 1906 and has been a landmark ever since. So it was natural and fitting that when Eero Saarinen came to design the new Auditorium he should think in terms of a shell concrete dome. The dome is one eighth of a sphere, pinned down, anchored at three points on heavy sunken abutments and then the dome cut away between these points to allow for the rising, segmental glass walls. The building covers about half an acre. Seen by night, with the lights within, it is an opal; by day it suggests one of those curved white hats the ladies have been affecting this spring, or, less elegantly and to the critics, it suggests a diaper. Since the married students are housed directly behind the Auditorium it might be that Mr. Saarinen had this symbol in mind, though I doubt it. The opal, the white hat, or the diaper depending upon your point of view.

As you enter the airy glass-enclosed foyer you are on the level midway between the main auditorium and

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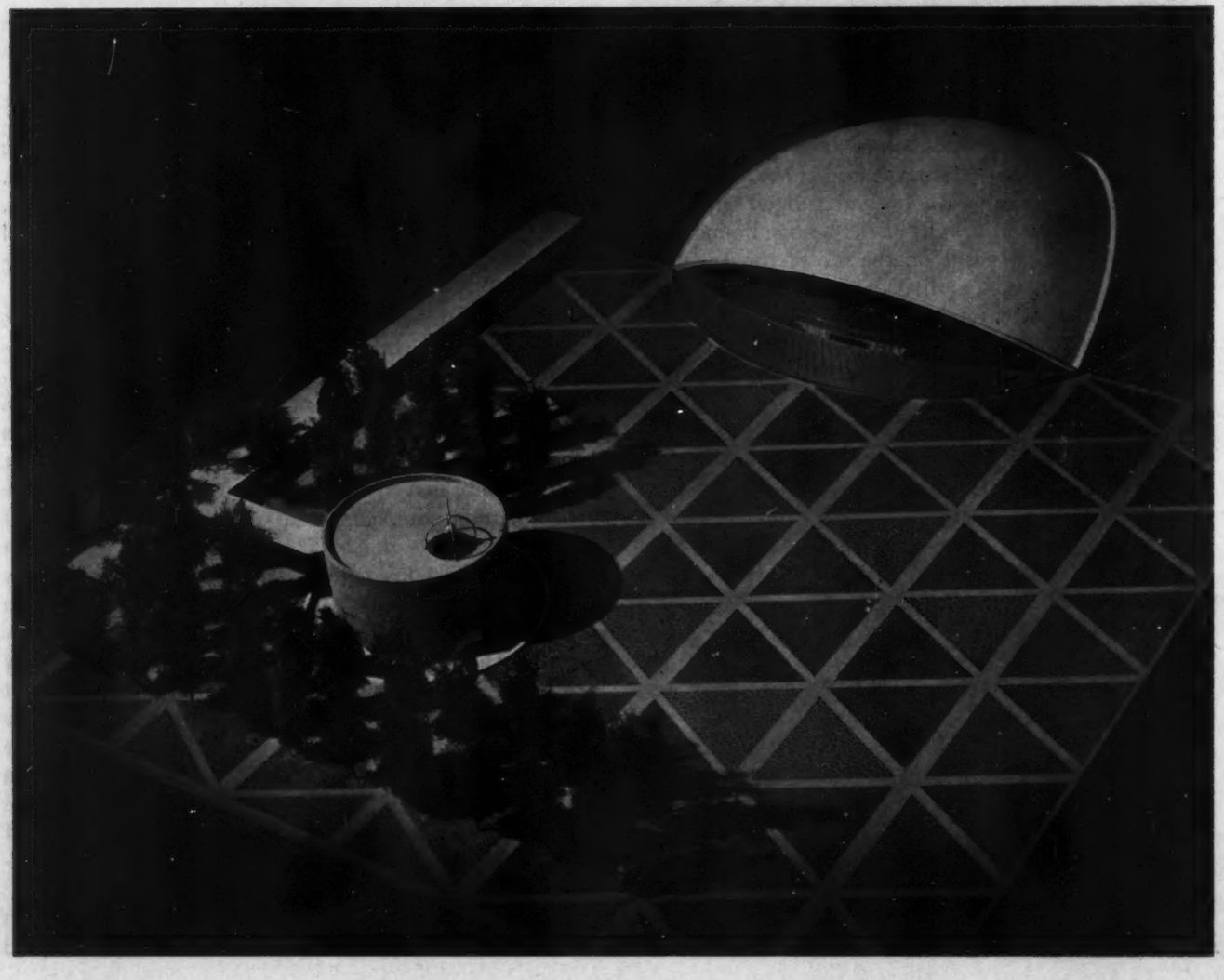
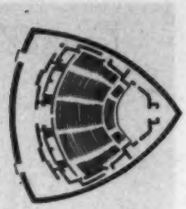


Kresge Auditorium, Massachusetts Institute of Technology
Eero Saarinen and Associates, Architects
Anderson & Beckwith, Associate Architects
Ammann & Whitney, Structural Engineers
Hyde & Bobbio, Mechanical and Electrical Engineers
Bolt, Beranek & Newman, Acoustical Engineers
George A. Fuller Company, General Contractors



THE OPAL ON THE CHARLES

By Edward Weeks

the little theatre below. Side doors and ramps admit you to the big main hall, seating 1250; the doors are of solid oak, three inches thick with weather stripping, a sound shield against the traffic on Massachusetts Avenue as the dome is against the planes overhead. The little theatre with seats for 250 lies directly beneath and to either side of it are hermetically enclosed, soundproof rehearsal rooms. It would be possible, though unlikely, to have all four units occupied at the same time and happily unconscious of the others. The evening I saw Thornton Wilder's play "The Skin of our Teeth," so admirably presented in the little theatre, the M.I.T. concert band was going full tilt in the big auditorium overhead, and although I was listening in both directions I heard only the faint mutter of the bass drum penetrate to our smaller sanctum. This, I am told, is due to many factors, chief among them the fact that the stage floor of the big auditorium is floated on a fiberglass pad, a springy blanket which deadens the impact of piano or ballet, though not yet the drum.

As a lecturer of twenty-five years' experience I have visited several thousand auditoriums, more often as a speaker but often as a listener, and it is fascinating to me to observe the skill and ingenuity with which Mr. Saarinen and his acoustical engineers, Bolt, Beranek and Newman, have met the imperatives of such a building. As I see it there are five imperatives in which the performer and the spectator have a common interest, and I shall rate them in order of their importance.

The first imperative is that one can hear and be heard, not in blurred accents but distinctly. Symphony Hall in Boston, for instance, gives magnificently of Myra Hess or the great blend of the orchestra, but is hard on a tenor as reedy as John McCormick. The cruelest performance I ever heard there was a lecture by H. E. Wells. Mr. Wells was a short man with a high Cockney voice: he couldn't reach the high suspended mike (which had not been lowered from its customary spot above the orchestra) and we certainly couldn't reach him.

When the Kresge building was in its next-to-final stage members of the Institute faculty used to wander into the main auditorium and standing in the pit clap their hands for the joy of hearing the sound bounce from the cement floor to the cement dome and back again; then they would seek out Mr. Newman and tease him. But the acoustical engineers had the last laugh; with delicate wooden gratings, with unobtrusive backstops of plastic fabric hung over fiberglass pads, with sound-absorbent seats, they have controlled and clarified the voices that come from the stage. It is a big stage, some forty-five feet across, and deep enough to seat an orchestra of 250 pieces as well as the dignitaries who assembled for the Dedication. They spoke well and were heard with ease.

The single voice and the solo instrument are beautifully accentuated, but it is still a question of how true a blend we shall get from the full orchestra. Commenting on the performance of Haydn's "Creation," performed by soloists, chorus and orchestra, Rudolph Elie, the music critic of the Boston *Herald*, wrote: "Acoustically, the auditorium's properties are inexorably naked, exposing a high fidelity quality equal to if indeed not exceeding that of London's Festival Hall. . . ." And he went on to add: ". . . it is very evident it will not be kind to the amateur, the dilletante or the improperly rehearsed professional as it reveals the slightest flaw while enhancing the auditory response." Trust an engineer to be exacting.

Lighting is the second imperative, and here as a speaker I think I have suffered every gradation from lecterns whose little bulb had long ago expired (fortunately I seldom use notes) to that vast hall in Minnesota where I spoke with footlights playing on my face against a backdrop of (artificial) falling snow. I was told to stand in one place and not to use my hands when I talked, for if I did, I should cut off the beams. Since it was impossible for me not to use my hands I kept blacking out myself and soon the house lights were turned on. I remember seeing Edna St. Vincent Millay begin her Reading in a badly lighted hall by hitching up her evening dress and making her way the entire length of the stage unscrewing the footlights which were too blinding

Dr. James R. Killian, Jr., M.I.T. president, at dedication

Calvin D. Campbell

Robert D. Harvey Studio

for her to see the print. But no such embarrassment will ever afflict a speaker here at the Kresge. The lighting system is the best that engineering skill can devise, and I doubt if any playhouse on Broadway could hope to match it. Indeed, the boys are still working on it: television cameras are to be installed with a direct wire to Station WGBH, the Educational Channel for Greater Boston.

Every entertainment hall should be refreshing — this is the third imperative. Most of them are at the outset, but then the air ceases to circulate, the oxygen is depleted, and the yawning and the nodding begin. In most auditoriums of my experience the yawning increases by the square of the distance from the first number. Through long experience I seem to have acquired the endurance of a camel, but the sight of my wife fighting off sleep all through the second half of a concert is agonizing enough to make me want to leave. The air is notably fresh in the Kresge Auditorium, and thanks to its cooling system it is as fresh at the end as it was in the beginning.

Serenity is my next requirement, and serenity for the spectator depends on how you rest your spine and where you rest your eyes. The seats in both halls of the Kresge are comfortable, they tilt you back at a proper angle, and they give you knee room. But how often elsewhere, as a soliloquy drones on or you become bored listening to Strauss, have you lifted your eyes to count the light bulbs in that fantastically great chandelier, or to chase the painted cupids to their lair in the apex, or to ask yourself if the Greeks really looked like those plaster casts in the niches. The wall space can be a constant detractor in any auditorium, and Mr. Saarinen is well aware of this. He [his father?] handled the problem to perfection in the Buffalo Kleinhans auditorium, and I should say with next-to-perfection in the Kresge where the walls are of oak flooring with an accentuated line between the boards. I find these horizontals rather nervousing as an eye rest. For no reason on Mr. Saarinen's part the sight of all this woodwork reminded me of our old summer cottage at Bay Head, of how damp it used to be in a Northeaster and of how the doors and drawers all stuck.

Serenity for the performer depends upon the properties I have already asked for, upon the stage which should be spacious and resonant, and backstage, upon an attractive dressing room, upon a Green Room where one can greet friends afterwards with a hot or cold drink, and upon a carpentry shop where scenery can be stored and instant repairs effected. They are all here.

The last imperative is that the hall be conveniently accessible. M.I.T. has done its best to provide a parking space in an area which is already pretty crowded. But the architect has made no concessions as yet to the rigors of the New England climate. He might as well have been building for Florida. The performer, if she be a lady in vulnerable evening dress, can be driven dryly into the basement. But the audience, some of whom may also be in evening dress, will have to slosh or run through the snow or rain which so often accompany a Boston entertainment. There is no marquee, no island where people could find shelter as their cars or taxis creep up. And while the undergraduates won't mind the exposure, their elders will.

I have said this building fulfills the functional requirements, and yet something is missing. The Little Theatre on which Winthrop Ames once lavished such care was the most intimate and responsive playhouse I have ever attended. Compared to it this is an impersonal igloo. The comparision is unfair but it points to what is missing. There is a stir and expectancy in going to the theatre — or to any performance — and warmth and light fan both. While there is plenty of light in the Kresge building, there is precious little warmth to be felt on entering this great glass cage on a May evening and there may be still less when snow is banked without and the temperature is down. The warmth I mean is not measured by the thermometer, it is kindled by people as they throng together in the lobby in anticipation. But I was conscious of a feeling of bleakness here as if even the individual had been insulated. The materials threatened to minimize the personal magic which drew you out of home: the naked brick walls of the little theatre are cold, the glass enclosed lobby is cold, and the cement which proclaims itself in the main auditorium has never

"Perhaps . . . they will generate the warmth . . ."

Phillip Lieberman

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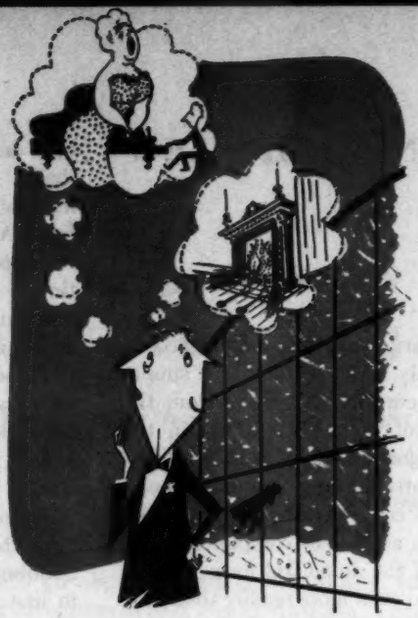


THE OPAL ON THE CHARLES

By Edward Weeks

been remarkable for kindling anything. If in the intermission there should be a choice between continuing with a difficult play or concert or going home to an open fire, I wonder whether the fire would not win.

"What's the philosophy behind a building like this?" I asked one who had had to do with the auditorium.

"To enclose space at the least possible cost," he replied.

"Did it?"

"Well, not perhaps this time, but from what we've learned if we had three to do each would be cheaper than its predecessor and the third would be considerably less expensive than the traditional form."

In his address at the Dedication President James R. Killian, Jr., of M.I.T. compared the Auditorium to the early New England meeting-house. "In visualizing an auditorium for M.I.T.," he said, "we sought a building to provide a similar nucleus for our academic community, especially for our student body. We felt it would be proper and possible to design a building which would be appropriate for worship, for academic ceremonials, for educational meetings and conferences, for music and drama, and for the maintenance of the civil life of our academic community." I am sure that this will be so, and having had a sampling of such activity this spring I wrote to my friend John Burchard, Dean of the School of Humanities and Social Studies, asking him to give me a glimpse of what lay ahead for next year. "I know," he replied, "that a group of very good Christmas carol singers would like to give a concert near Christmas . . . and I know that the American Academy of Arts and Sciences will meet in the Auditorium for its Franklin Anniversary in January. . . . I know our students are planning to follow up their very successful national Anti-Discrimination Conference with another conference on a serious topic and that the Auditorium will provide a wonderful place for that. The Tech Show which has had to have its auditions on the curbstone, so to speak, can now do them satisfactorily. There are more requests for nights for the Glee Club concerts and for Gregory Tucker's Celebrities Series, these being internal to M.I.T., than we have had in past years and I think this does clearly mean an increase in the total musical activity here.

"With respect to the little theatre, I think we can simply assume that the Staff Players who have done a good job of amateur theater for a long time under very difficult circumstances will improve their performances accordingly, but it might be more amusing to think of the things that the students are likely to do under the leadership of Professor Everingham. He has a general plan, with which I certainly agree, that instead of doing Broadway successes with amateur actors a student group should try to do imaginative plays which are hard to see otherwise and which task their ingenuity with respect to *all* elements of production and do not limit their contribution essentially to that of trying to be actors. There was a good deal of this, I think, in Everingham's production of "The King and the Duke" and I believe he now is planning to produce next year a play based on an unpublished movie script by Dylan Thomas which was done for the Arthur Rank Organisation but never used . . . In this sense the kind of theatre and ballet that used to go on at the Bauhaus would strike me as the right kind to be done here at M.I.T."

Who says scientists aren't human? Perhaps as these sparks fly upwards they will generate the warmth I have been missing. Perhaps.

"The King and the Duke" produced in the little theatre

Phillip Ueberman

M.I.T. AUDITORIUM: AN ENGLISH VIEW

By N. Keith Scott

Reprinted by special permission from the February issue of The Journal of the Royal Institute of British Architects

UNDER the critical eye of thousands of students and staff at the Massachusetts Institute of Technology, there is slowly arising one of the most controversial buildings of our time. Eero Saarinen was commissioned by M.I.T. to design an auditorium for the school to seat 1,200 persons together with a small intimate theatre to accommodate a further 200, the site to be in the heart of the great campus, which has a superb location on the banks of the River Charles, overlooking the centre of Boston.

The choice of architect was excellently made, for in Saarinen, M.I.T. was assured of a design worthy of the highest attributes of the Institute, with its world-wide reputation for research and for demonstrating the validity of revolutionary theories. Nevertheless, it is true to say that the complete originality of the form and concept of the auditorium caught most architects and engineers (to say nothing of the layman) rather off guard, and there has been a tendency among those who should know better to cover their embarrassment in some premature and ill-informed criticism.

The main shaft of the criticism which has been levelled at this structure concerns the effrontery of Saarinen in daring to call into question the time-honoured credo of Louis Sullivan, "Form follows function." Saarinen has quite obviously challenged the assumption that there is a fixed relationship between form and function and in this building he sets forth the contention that contemporary building materials are so numerous, building types so complex and mechanical installations so varied that many forms may be allied to many functions, the skill and ingenuity of the architect being required to weld these variables into a harmonious whole.

From the start, Saarinen rejected the conventional fan-shaped plan with its post and beam construction, and examined the possibilities of more fluid forms, with the result that he designed a dome, daringly conceived so that it was exactly an eighth of a sphere, and delicately poised on three abutments where the structure comes to earth on its wedge-shaped corners. This resulted in a very light-weight structure — the concrete dome is only 3½ in. thick at the centre — and it has virtually no cladding costs, for the only walls required are simply "weather curtains" dropped from the underside of the arches to fill in the segments of space left on the three sides. The segments will be glass walls through which one can read the shape of the auditorium as it rises completely independent of the dome. Its form may be appreciated even more readily than that of the Royal Festival Hall as seen through the glass screen which composes the Thames façade.

There can be little doubt that the architect's departure from the logical approach to design, as we currently understand that term, has created many structural and mechanical problems and in many instances he has relied upon the sheer ingenuity of modern technology to get him out of difficulties that would have presented insurmountable obstacles a quarter of a century ago. The most pertinent question which the designer of any auditorium must ask, of course, concerns the primary function of the assembly space, and it is equally obvious that the solution to the design is most likely to lie in a structural form which of itself tends to permit optimum hearing conditions. In his choice of structural form Saarinen flouts every precept of basic acoustical design, for the concave ceiling and the curved rear wall combine to prohibit good hearing conditions unless there is a vigorous applique design to counter the tendency to focus sound. On the face of it, therefore, the architect seems to be deliberately running the risk of having the same indifferent acoustical conditions as are to be found in the United Nations General Assembly building with its domed ceiling and concave rear wall.

The rapidly advancing science of acoustics, however, can now come to the architect's aid, and by the introduction of floating "clouds" the section of the room was radically altered and the troublesome rear wall made so absorptive that virtually no sound is allowed to return to give a focused echo on the stage. But there is still the problem of the mechanical equipment, and though the "clouds" hide much of it there can be little doubt left in the mind of one who has seen the building in all its construction stages that contortionist feats have been demanded of pipes and ventilating shafts. They frequently are squeezed into shapes, basically unsuited to their form. All service lines of whatever type rely upon the rectilinear plan for optimum economy; there is scarcely a straight line, much less a right angle, in this building.

These in brief are the arguments put forth by the functionalists, and we must now ask what Saarinen has achieved to justify proceeding with a design which has so many generally acknowledged drawbacks.

In the first place he has designed a building of almost unbelievable purity in line and mass. It is quite apparent that once he had satisfied himself upon the form of his conception Saarinen allowed no practical difficulty to stand in his way, even if the appearance of these difficulties pointed to the basic unsuitability of the form in question. Problems which arose from his design were solved and things were made to work. There is much talk of the economic nature of the structure, the tremendous saving in wall costs, and the almost unbelievable lightness of the dome, but in my opinion these arguments are rationalisations thought up to justify the scheme to its detractors. In fact a study of Saarinen's early sketches reveals that at no time did he strive for a perfect shape for an auditorium as such, but that he embarked upon a search for form in terms of the dome from the very beginning.

As the building nears completion it is possible to get a glimpse of the final effect, for it is upon this that the architect stakes his theory and the scheme must stand or fall by its success or failure. To the writer, the M.I.T. auditorium is an outstanding success. From a distance, the dome ties in beautifully with the hitherto somewhat unrelated domes of the main buildings; from close up, the skill and daring of the designer are clearly seen in the stark statement of the structural form; from inside the foyer, the dramatic sweep of the arches looping to earth on all sides is almost overpowering in its emotional content, and in the main auditorium the all-pervading warm white oak lining to the walls contrasts beautifully with the white "clouds" suspended from the vast concave dome which, painted a dark blue-grey suggestive of a night sky, is sensed but not consciously apprehended as one glances around. Although the beautiful texture of the natural

(Continued on page 268)

THE ANALYSIS AND DESIGN OF A COUNTY COURTHOUSE-JAIL

Brazos County Courthouse & Jail, Bryan, Texas
Caudill, Rowlett, Scott & Associates
Architects & Engineers

THERE ARE SEVERAL WAYS to go about designing a building, each one possessing its own peculiar advantages and disadvantages. There is no method for organizing the work and analyzing the problem that will guarantee an attractive, workable scheme. Such a result can come only when the magic intangible, creative design talent, is added to a careful study and resolution of the needs.

Nevertheless there is merit in an organized approach which is followed by a well ordered analysis of the problem at hand. Many architects have profited from satisfying their natural curiosity about how the other fellow works. Doing things in a logical order, having always a well conceived notion of the relationship of ideas and elements to each other and to the ultimate objective is good practice, good office economy, and brings about the atmosphere for a happy result.

The story of the way *this* design process was executed by *these* architects is of interest. Of interest because it gives us a look into the workings of the Caudill, Rowlett, and Scott office and tells us how they arrived at an unusual plan, and why; of interest also because the county courthouse and jail is a typical problem (in the national sense) that begs for widespread and immediate attention.

This design process started with the assemblage of as much information as possible on the nature of the problem, the client, the needs. Data was gathered from observation, conversation, mail inquiries, reading, and also from the investigations of a citizens' committee. Next, a thorough analysis and comparative evaluation of these needs resulted in a listing of 14 "design premises" — actually a set of conclusions which could now become working principles as the process went forward. No drawings or sketches had yet been made.

The third step was the translation of the 14 premises into "idea sketches," 26 of which were made. Their production was the business of thinking graphically. These sketches were intended as guides, concepts for further work — some or all of them might or might not find a place in later designs. The interpreting of ideas into architectural visualizations seemed to help crystallize those ideas.

Thus prepared, the architects then developed four basic schemes, considered (with the client) the strong and weak aspects of each, and ended with a design that gained unanimous approval.

The entire study was reproduced, printed, and bound into a striking 112 page book with colored dividers. The proper persons were given copies and could thus consider — at leisure and privately — the four schemes and all the data that led to each. This made possible a thoughtful, individual evaluation by each interested official.

Such a procedure gives the committee members a sense of active participation in the job; presents effectively the architect's manner of working and a measure of the value of his services; helps promote better understanding and hence better public relations. — **James S. Hornbeck**

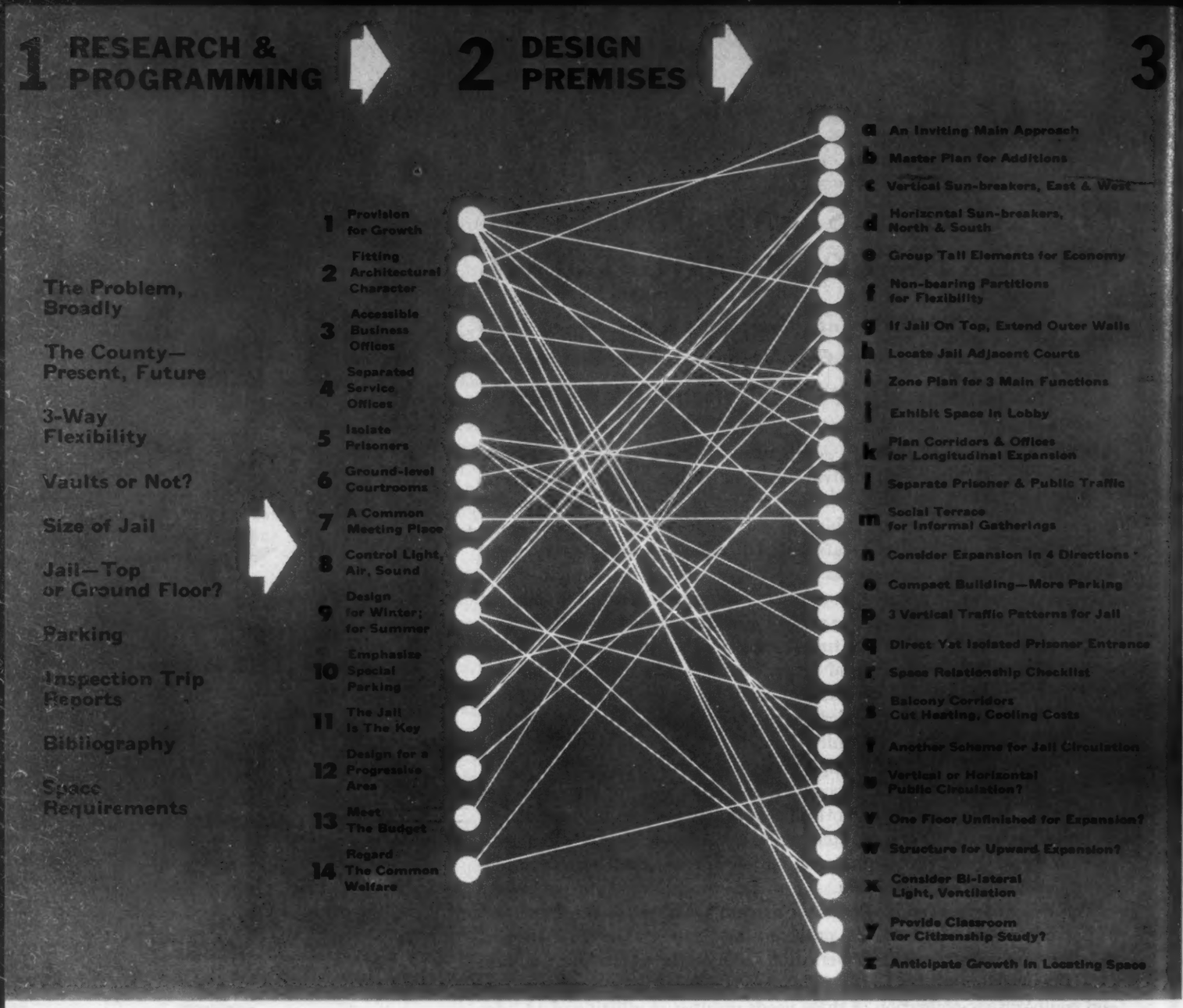
1 RESEARCH & PROGRAMMING

2 DESIGN PREMISES

3 IDEA SKETCHES

4 FOUR SCHEMES

5 SELECTED DESIGN


1 RESEARCH & PROGRAMMING
2 DESIGN PREMISES
3
The Problem, Broadly
The County—Present, Future
3-Way Flexibility
Vaults or Not?
Size of Jail
Jail—Top or Ground Floor?
Parking
Inspection Trip Reports
Bibliography
Space Requirements
1 Provision for Growth
2 Fitting Architectural Character
3 Accessible Business Offices
4 Separated Service Offices
5 Isolate Prisoners
6 Ground-level Courtrooms
7 A Common Meeting Place
8 Control Light, Air, Sound
9 Design for Winter; for Summer
10 Emphasize Special Parking
11 The Jail Is The Key
12 Design for a Progressive Area
13 Meet The Budget
14 Regard The Common Welfare
a An Inviting Main Approach
b Master Plan for Additions
c Vertical Sun-breakers, East & West
d Horizontal Sun-breakers, North & South
e Group Tall Elements for Economy
f Non-bearing Partitions for Flexibility
g If Jail On Top, Extend Outer Walls
h Locate Jail Adjacent Courts
i Zone Plan for 3 Main Functions
j Exhibit Space In Lobby
k Plan Corridors & Offices for Longitudinal Expansion
l Separate Prisoner & Public Traffic
m Social Terrace for Informal Gatherings
n Consider Expansion in 4 Directions
o Compact Building—More Parking
p 3 Vertical Traffic Patterns for Jail
q Direct Yet Isolated Prisoner Entrance
r Space Relationship Checklist
s Balcony Corridors Cut Heating, Cooling Costs
t Another Scheme for Jail Circulation
u Vertical or Horizontal Public Circulation?
v One Floor Unfinished for Expansion?
w Structure for Upward Expansion?
x Consider Bi-lateral Light, Ventilation
y Provide Classroom for Citizenship Study?
z Anticipate Growth in Locating Space

1. RESEARCH & PROGRAMMING

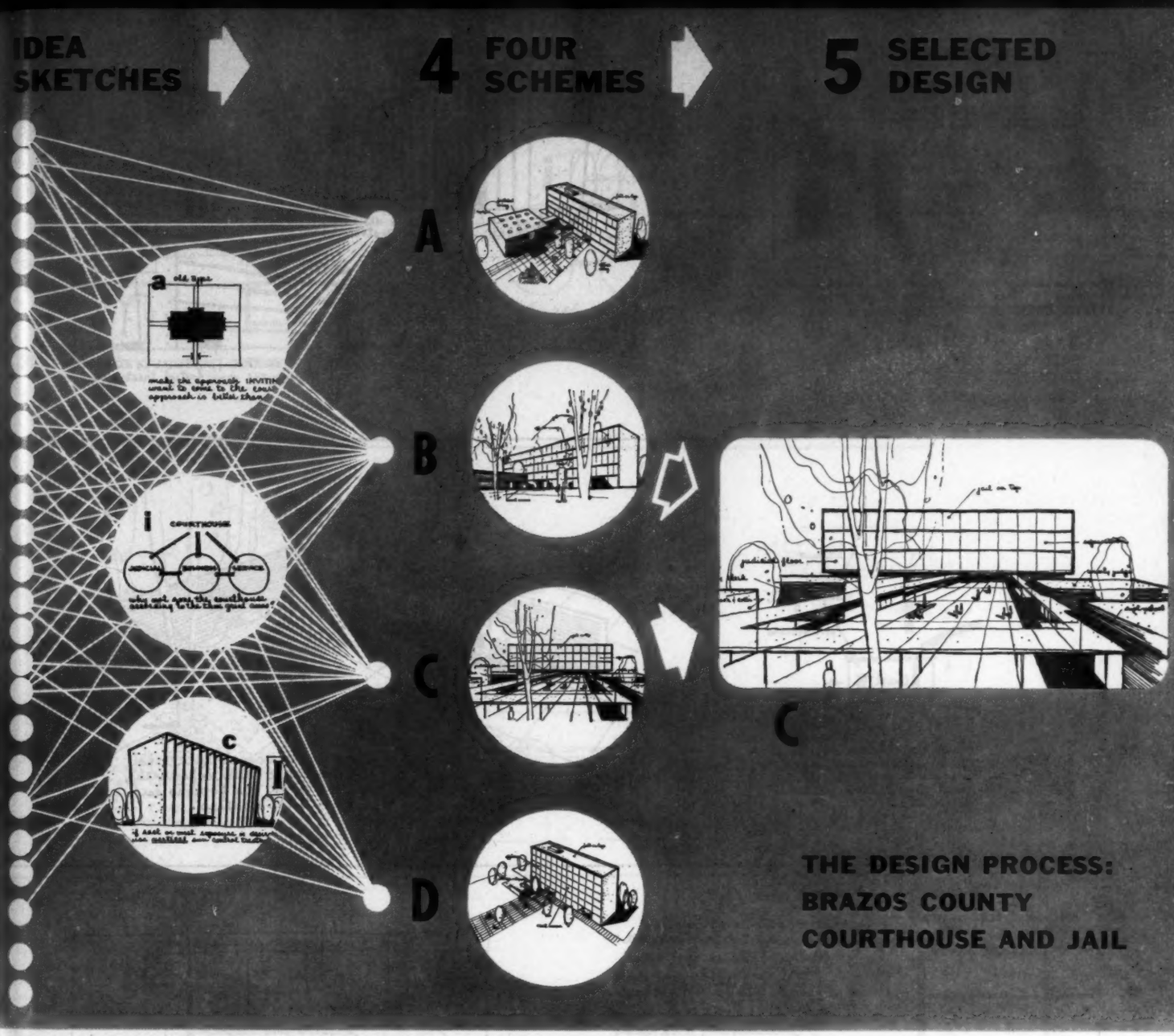
Space requirements prevent more than a brief summary of the architects' detailed 65-page report.

After study had revealed the true nature of the problems, possible solutions could be discussed, suggested. Broadly, it was required to (a) provide for present and future needs (b) on a small site (c) within the bond issue sum. What, then, were these needs?

The county and its government were studied; its 3-part function (judicial, business, service) and its steady growth pattern. For the future, flexibility by way of the qualities of expandability, convertibility,

2. DESIGN PREMISES

Following the research that led to a listing of the problems, the next logical step in planning was a statement of conclusions reached; a list of the salient points that appeared as true premises in the light of research and experience. These could then serve as guiding principles for further design development. Much study produced a list of 14 such premises, listed in the chart above. Only a few will require explanation.



versatility. Vaults — for theft? for fire? Everything considered, the reluctant decision: office space only.

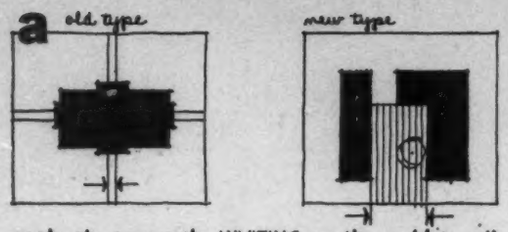
Real jail problem was prisoner segregation, although area a question also; settle for 80 prisoners in 18 to 24 cells — plus expansion. No clear-cut decision possible on top-floor vs ground-floor jail — consider either. Provide maximum parking as plot permits.

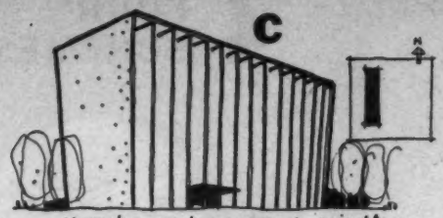
For further information: eight other jails and courthouses were visited, carefully reported; facts and opinions gathered from experts, administrators, technicians, judges, lawyers, officials; references were assembled into a useful three-page bibliography.

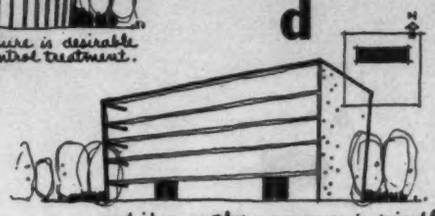
The Citizens' Advisory Committee made a detailed inventory, consulted the officials concerned, then listed space requirements both in detail and in tabular recap; estimated that a 35,600 sq ft building @ $16.50 and a 4000 sq ft jail @ $30, plus fees and equipment, could be built for the $800,000 allotted.

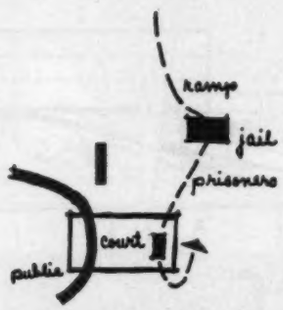
It was felt (2) that the courthouse should have the quality of dignity associated with free people — properly express the idea of a county "capitol," and yet should simultaneously appear friendly, inviting. The business offices (3) are county clerk, county tax assessor and collector; the service offices (4) are those for health, education, welfare, etc. For easier handling of large groups, No. 6 was considered preferable.

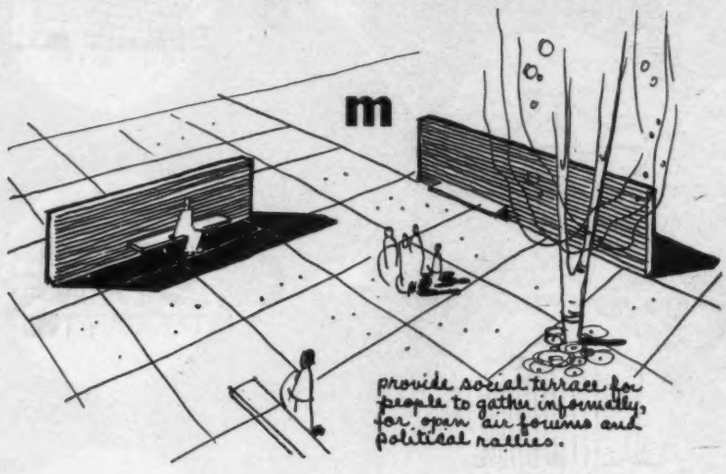
In the only county building common (7) to all, stimulating areas and rooms to encourage social exchange of ideas should be provided. Special parking (10) for jail, staff, jurors, public. Jail and prisoners (11) must be completely segregated, secure. Modern materials and building techniques should be utilized for a progressive area (12). Architecture for local government should serve common needs (14) for the benefit of all.

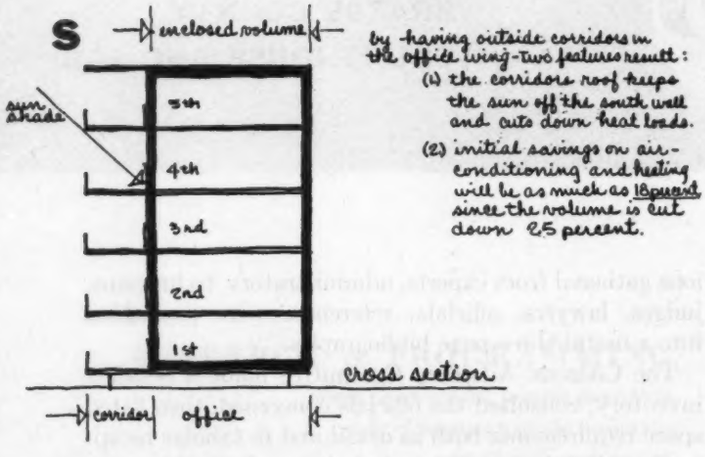

a
old type
new type
make the approach INVITING so the public will want to come to the courthouse. one main approach is better than many small ones.

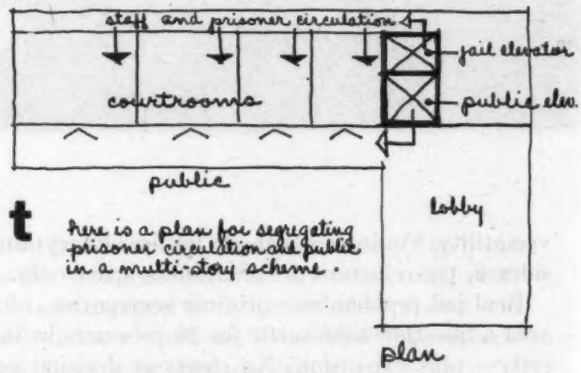








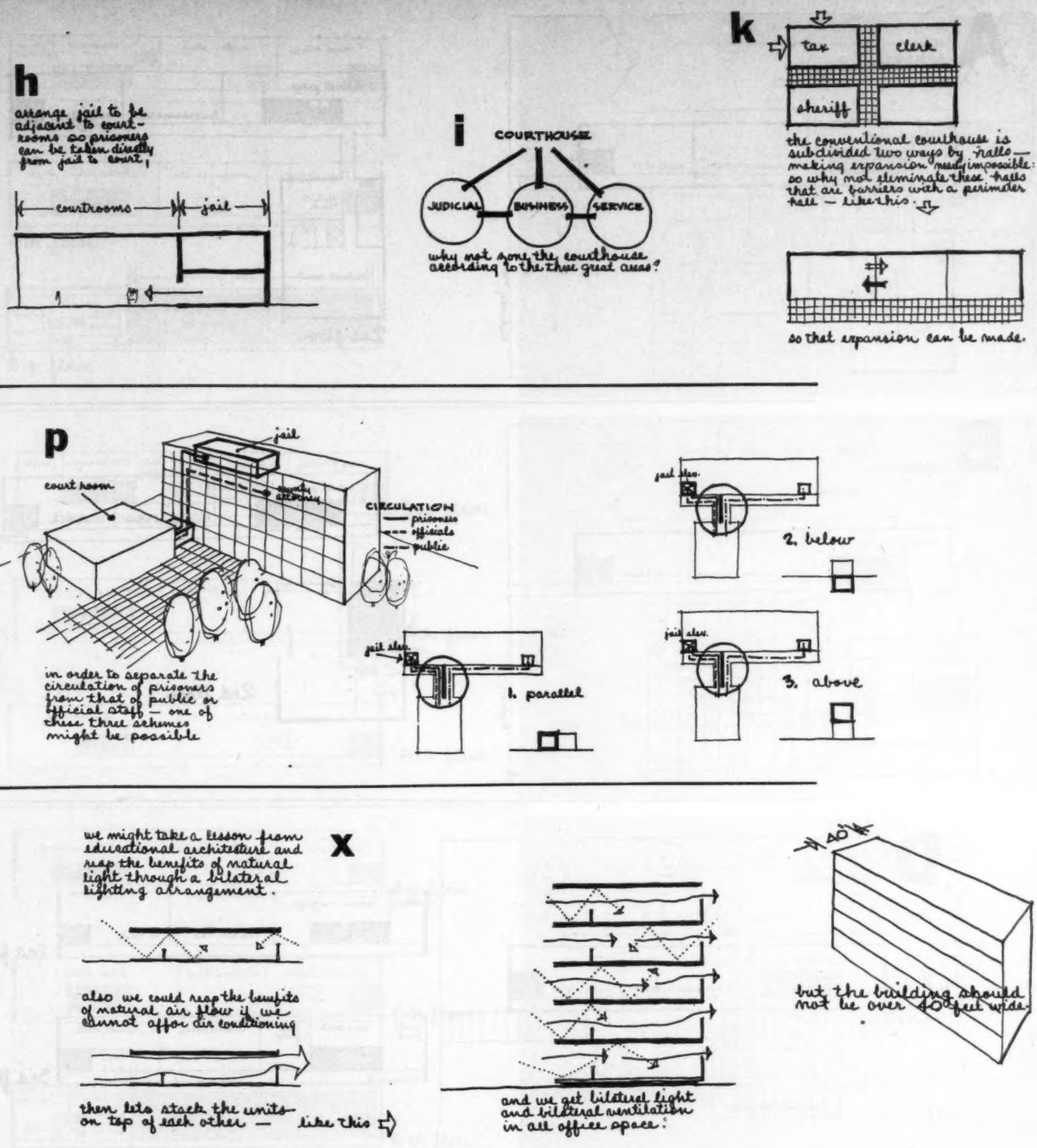

s
enclosed volume
sun shade
5th
4th
3rd
2nd
1st
cross section
corridor
office
by having outside corridors in the office wing-two features result:
(1) the corridors roof keeps the sun off the south wall and cuts down heat loads.
(2) initial savings on air-conditioning and heating will be as much as 18 percent since the volume is cut down 25 percent.



BRAZOS COURTHOUSE

3. SKETCHING FOR IDEAS

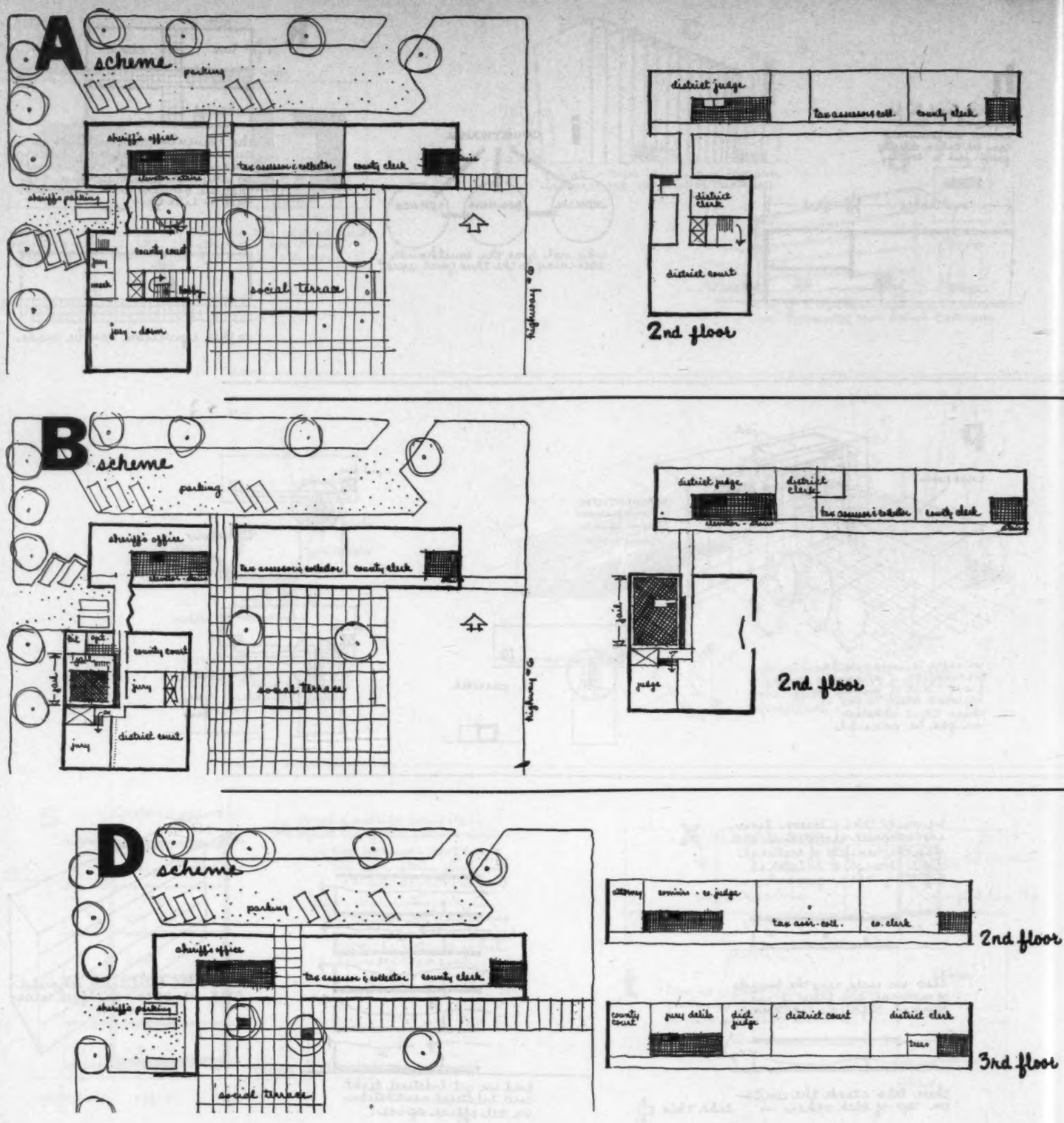
The next step was to begin interpreting the space needs — for the first time — into the three-dimensional language of architecture. Each of the 26 sketches listed (p. 140) stems from one or more of the design premises. Some of these ideas may occur in the final plan — some may not. Nevertheless, principles for guidance as the study proceeds have been restated graphically; crystallized. The architects' report goes on to state, "A good courthouse does not derive only from good ideas, or careful planning, or proper use of materials, or ade-


h
arrange jail to be adjacent to court-rooms so prisoners can be taken directly from jail to court.
courtrooms
jail
i
COURTHOUSE
JUDICIAL
BUSINESS
SERVICE
why not zone the courthouse according to the three great axes?
k
tax
clerk
sheriff
the conventional courthouse is subdivided two ways by walls — making expansion nearly impossible: so why not eliminate these walls that are barriers with a perimeter wall — like this.
so that expansion can be made.
p
jail
court room
CIRCULATION
prisoners
officials
public
in order to separate the circulation of prisoners from that of public or official staff — one of these three schemes might be possible
1. parallel
2. below
3. above
x
we might take a lesson from educational architecture and reap the benefits of natural light through a bilateral lighting arrangement.
also we could reap the benefits of natural air flow if we cannot afford air conditioning
then lets stack the units on top of each other — like this
and we get bilateral light and bilateral ventilation in all office space.
but the building should not be over 40 feet wide.

quate space and equipment. It must be a proper correlation and synthesis of all these — and many more."

Illustrated above are 12 of the 26 idea sketches. They were not arbitrarily selected as more interesting or important than the remainder, but simply as a representative sampling for our available space. Observing these few sketches, note how an idea earlier expressed in words takes on new and vivid meaning — added life and dimension — when presented pictorially. Short of a model, how better to consider design ideas?

The space relationship checklist, item "r," was an interesting tabular charting of the necessary 22 space elements and an analysis of their requirements in common; such as public access, driveway entrance, office type space, relation to other space, fixed or expandible areas, etc. Thus a basis for some sort of system of zoning was drawn. Also, when preliminary plans are made, such a chart can serve for checking. Incorporating all ideas is obviously impossible, but now at least one basis for judgment exists.

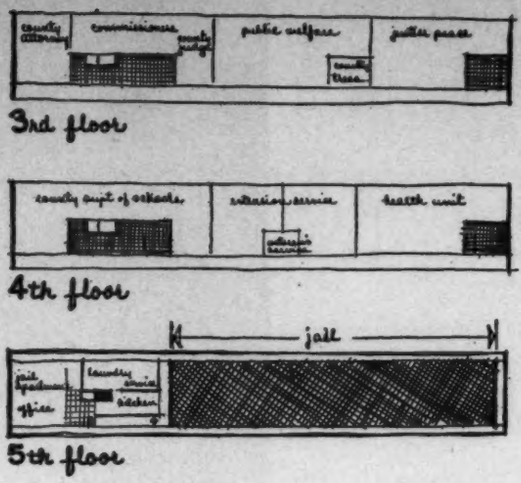


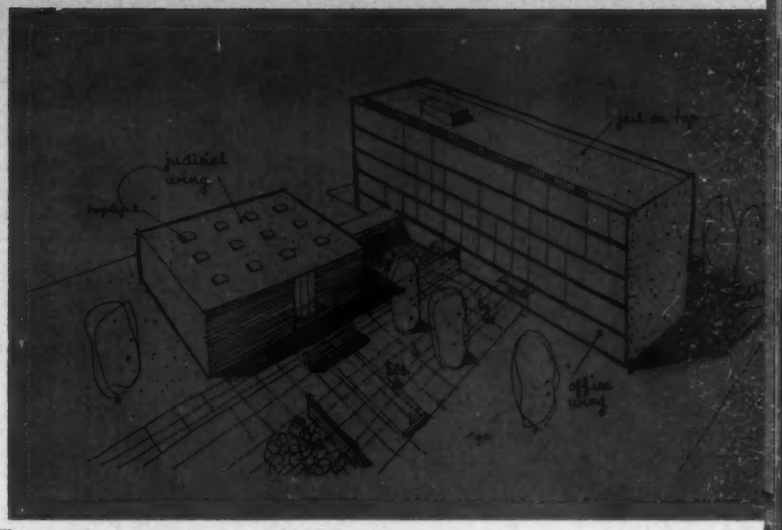
BRAZOS COURTHOUSE

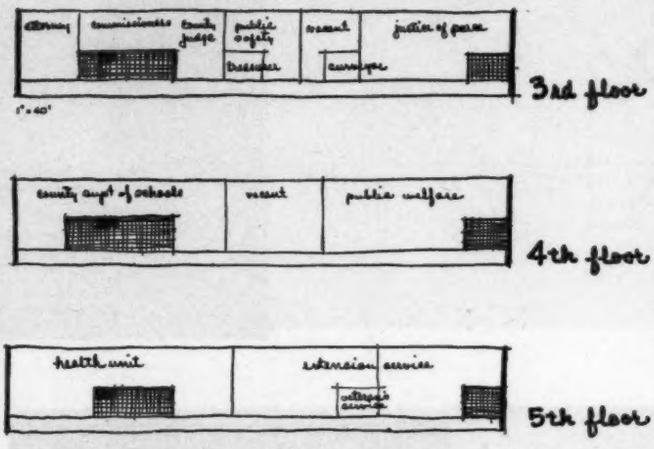
4. FOUR BASIC SCHEMES

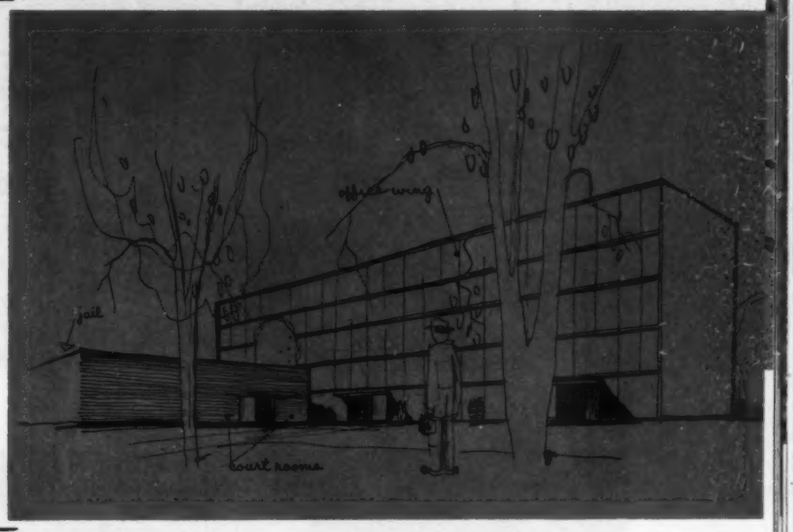
Of which three are shown here, the selected one overleaf

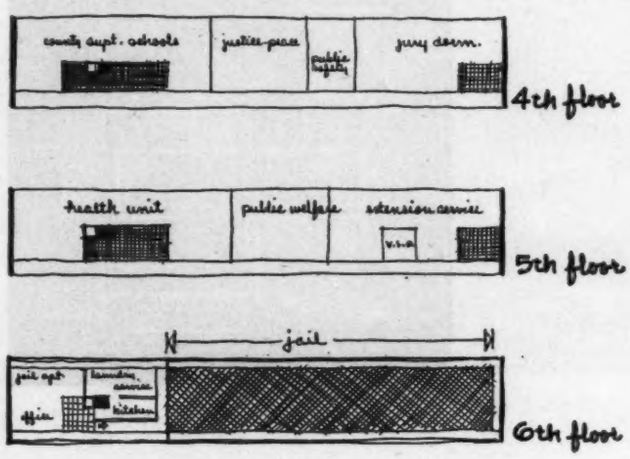
A. Two part arrangement; an office building with jail on top and a courthouse wing. Advantages: compactness for maximum parking, site development; flexible office spaces; direct access to courts; high units grouped for economy. Disadvantages: top floor jail adds problems and expense of extra elevators, heavy construction, service; judicial offices not ideally located in relation to courts; 2nd floor work areas and expansion for business offices; service offices ideally at ground level.

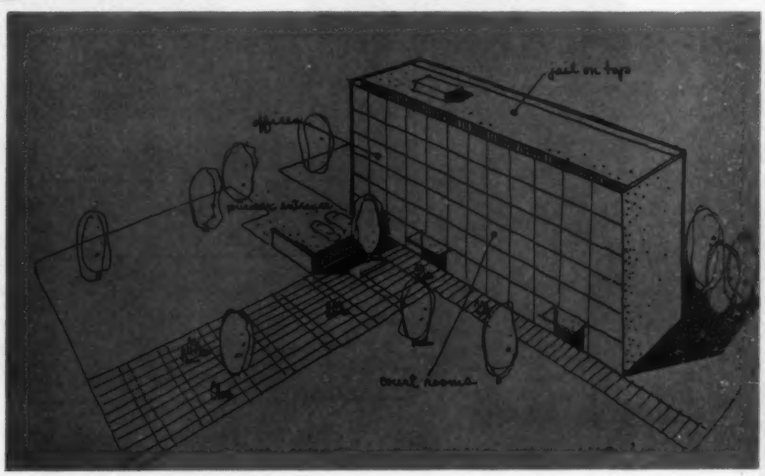






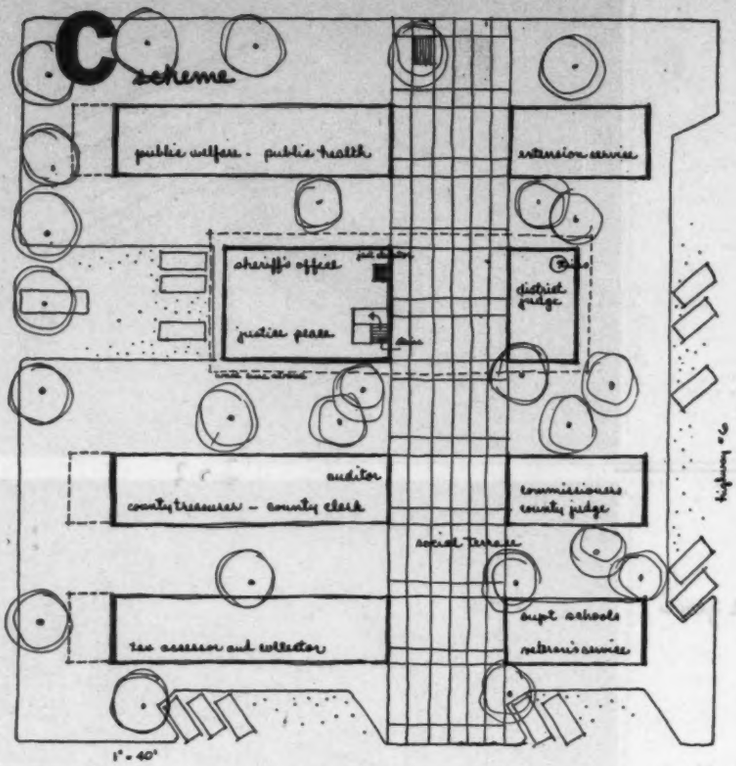


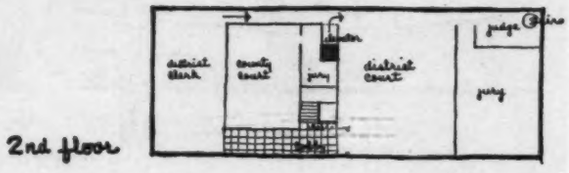


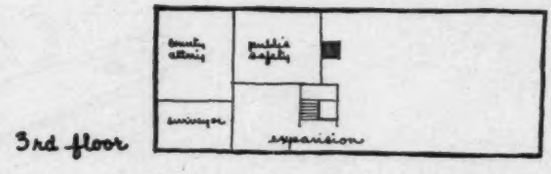


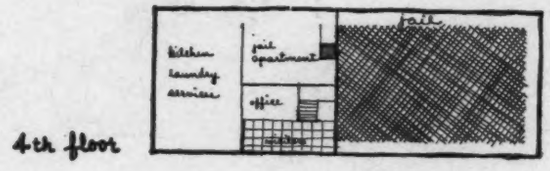
B. Essentially the same as A except that jail is now located on the ground floor of courthouse wing. Advantages same as for A, plus: ground floor jail solves service problem, eliminates one elevator, can be expanded as needed; direct prisoner access to courts; office wing can be lighter, simpler construction without jail on top. Disadvantages same as for A except: ground floor jail creates a security problem and the possibility of prisoner disturbance to public, staff.

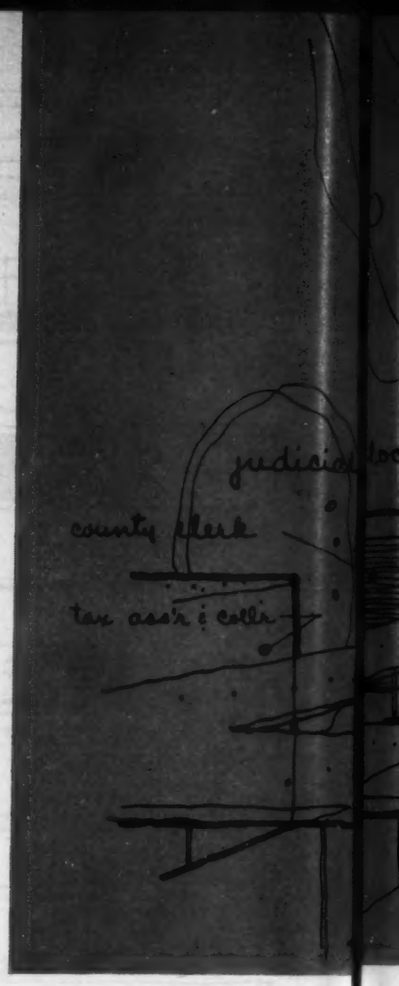
D. A single building with the jail located on the top floor. Advantages: greatest possible compactness permits maximum site development and parking area; flexible office spaces; economy through compactness. Disadvantages: only a few elements can have direct ground-level access; top-floor jail problems as noted before; combining high and low elements creates wasteful high ceilings for office areas; necessity of locating the business offices on two different floors.

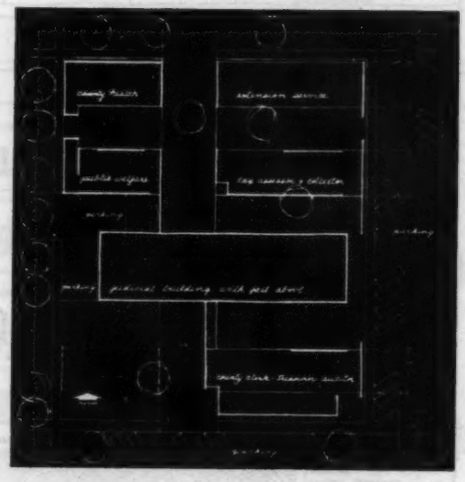










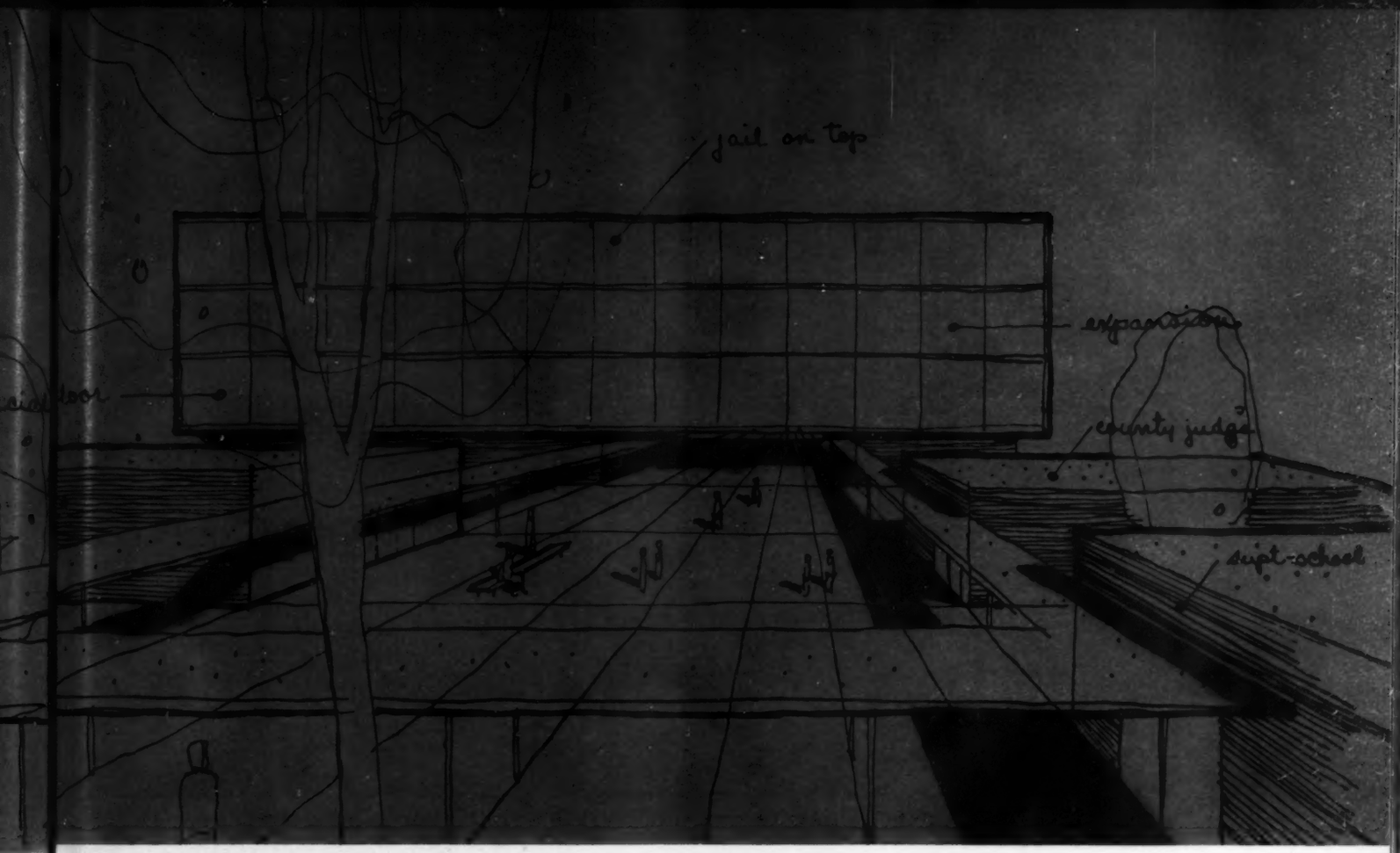


BRAZOS COURTHOUSE

5. THE SELECTED DESIGN

Now being built, with minor modifications

This unusual scheme — within our knowledge the first decentralized plan for a courthouse and jail — should turn out to be both good looking and workable. The architects' original recommendation, in view of the budget, was scheme B. However, after the Court allowed a larger amount, the universal choice was scheme C. Under construction, its steelwork is now above ground. The model is pictured above. Shown also — in reverse — is the slightly modified final plan. The na-



Roland Chatham Studio

ture of its minor modification is unimportant to this study; more properly forms a part of the final story.

Advantages: affords the opportunity for attractive architecture and great public amenity; locates both business and service offices at ground level, with direct and separate entrances; specific units can be separately lighted and heated for night use; three of the wings can be expanded; lawbreakers are completely separated from the public; judicial offices and courtrooms are in the same building; public access to courtrooms is separated from access to other units; direct prisoner access to courts; a surge of people in or out of one unit need not disturb those in other units.

Disadvantages: large site coverage leaves little area for parking; judicial and commissioner offices not ideally located in regard to county courtroom; top-floor jail creates the problems and expense of extra elevator, heavy construction, more difficult servicing.

TASTEFUL BANK REMODELING

Bill Hedrich, Hedrich-Blessing

Personal Banking Division
Chicago National Bank

Skidmore, Owings & Merrill, Architects

Campbell, Lowrie & Lautermilch Corporation, Contractors

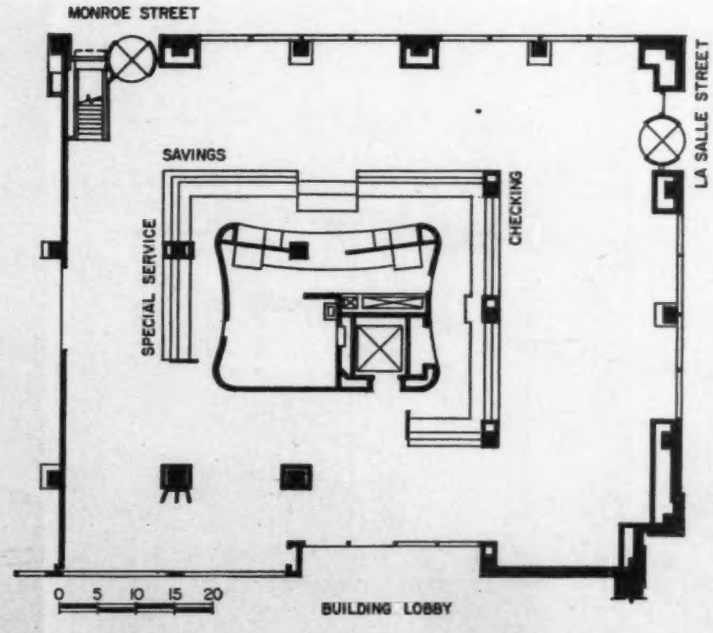
UNIFIES A HARD-TO-HANDLE SPACE

THE ARCHITECTS' PROBLEM was to remodel a relatively small ground floor area in the Chicago National Bank Building, located in the heart of Chicago's financial district. This space was to be devoted to personal checking, small loan, and savings transactions. The idea of the design was to create an informal, friendly atmosphere — rather in the spirit of a "club for banking" — as opposed to the cool austerity of the institution's main banking room, located on the second floor of the building.

The existing space, rectangular in shape, was spotted with irregularly spaced columns and an elevator to the second floor (which was to remain). The architects' solution was to enclose the elevator and all of the columns except two within a central island core and surrounding counter, with the result that the entire area assumed a unified, uncluttered look formerly lacking. The core, which also contains a workroom and lavatory, was — for better appearance — shaped in a form resembling a rectangle with rounded corners and gently concave sides.

Materials, colors and lighting have been keyed to the idea of warmth and informality. The island wall and counter die faces are clad in natural clear white oak flooring, applied vertically with V-joints; the floor is natural red quarry tile in 12-in. squares; the banking counter tops and ledges are gray and white precast terrazzo; all ornamental metal and lighting fixtures are bronze, satin finish; the ceiling is fissured mineral acoustical tile cemented to suspended gypsum board; the lighting is entirely incandescent, a combination of stock downlights and special chandeliers designed by the architects; the furniture and curtains were selected to carry out the "club for banking" theme; the space is air conditioned, with booster heating at the entrances.

On the left page are two views of the remodeled banking area; the photograph above and right shows the bronze and glass entrance-way from the lobby of the existing building.

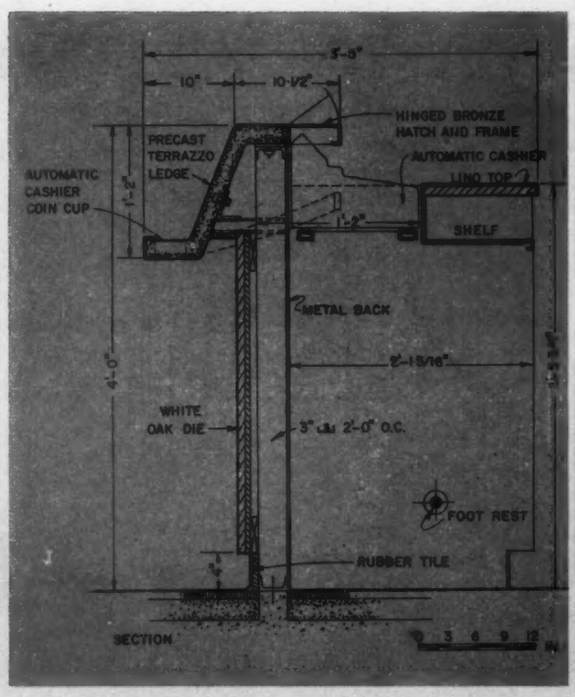


Bill Hedrich, Hedrich-Blessing

CHICAGO NATIONAL BANK

Both the stand-up and sit-down check desks, above, were designed by the architects. They are topped with ½-in. tempered glass, into which the circular pen stands are recessed. The body of the desk and its partitions are of natural unbleached walnut, supported on a satin-finished bronze frame which is secured to the floor. The legs are 1¼-in. o.d. tubes, cross-braced by ⅜ by ¾ bars and longitudinally braced by ⅜ by 1-in. bars. All joints were welded, then ground and polished.

The banking counters, shown in detail below, are topped with a precast terrazzo shelf and ledge, into which the cups for the change-making machines are cast. The support is a welded frame of 3-in. channels, expansion bolted to the floor, rear-faced with painted steel flush panels.



RESIDENTIAL STAIRS

STAIRS are coming into their own again as part of house architecture. Practically extinct in the era of the one-story house, they are an increasingly important design element in today's two- or multi-story residence. Present-day costs do not permit the space-consuming curved stairways or handsomely carved railings of two decades ago, but the best of today's design is equally effective.

The photo below is reproduced from the RECORD's last photographic study of house stairs some 16 years ago. That at the right (no small children in the family!) and those on succeeding pages are recent.

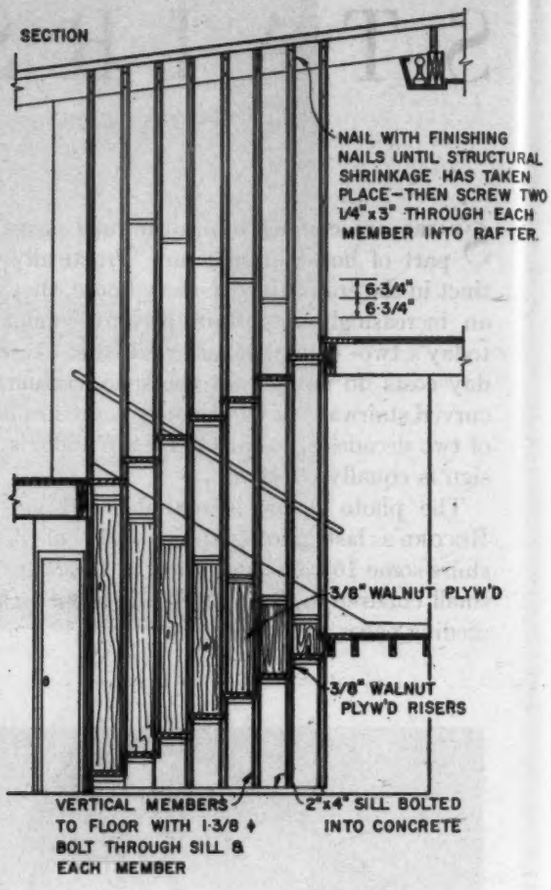
Gottscho

Red Bank, N. J. Howard and Frenaye, Architects
From ARCHITECTURAL RECORD, *February, 1939*

Hedrich-Blessing

1 ***Hinsdale, Ill.***
George Fred and William Keck Architects

Joern W. Gerdts


SECTION
NAIL WITH FINISHING NAILS UNTIL STRUCTURAL SHRINKAGE HAS TAKEN PLACE—THEN SCREW TWO 1/4"x3" THROUGH EACH MEMBER INTO RAFTER.
6-3/4"
6-3/4"
3/8" WALNUT PLYW'D
3/8" WALNUT PLYW'D RISERS
VERTICAL MEMBERS TO FLOOR WITH 1-3/8 ϕ BOLT THROUGH SILL & EACH MEMBER
2"x4" SILL BOLTED INTO CONCRETE

2

RESIDENTIAL STAIRS

2 *Ogden, Utah. Stephen L. MacDonald, Architect*

3 *Cambridge, Mass. Carleton R. Richmond, Jr., Architect*

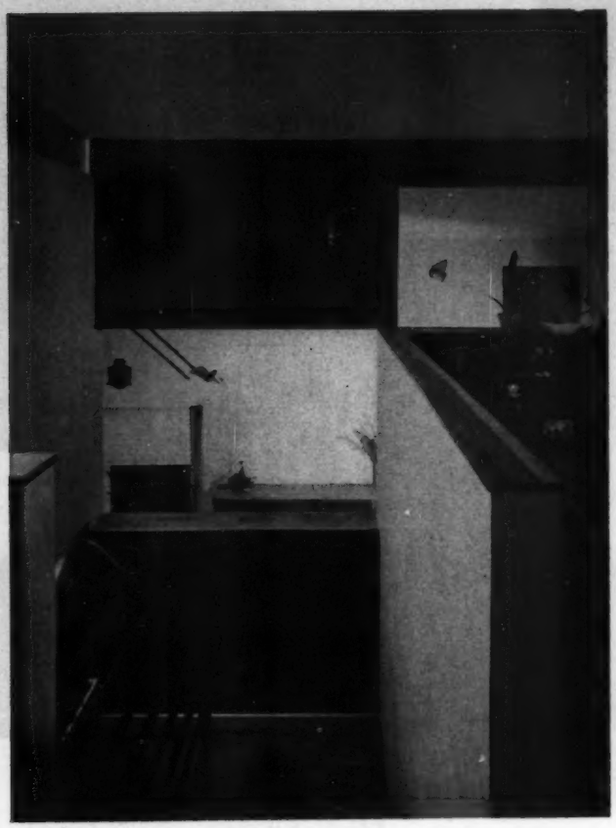
4 *Arlington, Va. Charles Burchard and William Lyman, Architects*

5 *Denver, Colo. Norton Polivnick, Architect*

6 *Honolulu, T. H. Vladimir Ossipoff, Architect*

Joseph W. Molitor

3



Robert C. Lautman

4

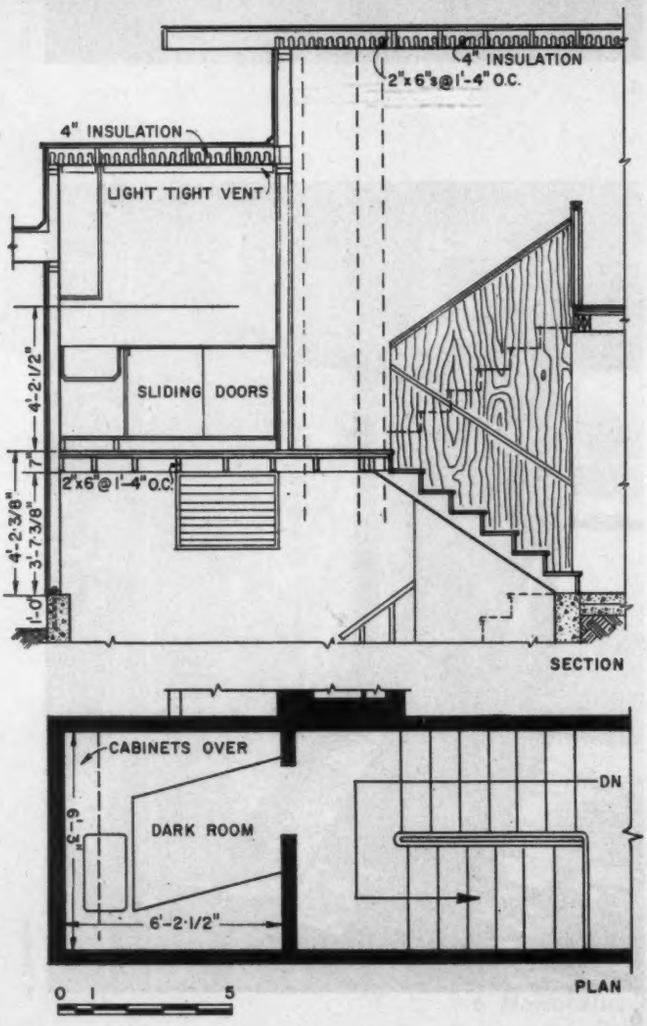
Marshall Brooks

5

R. Wenkam

6

7



Stair landing in this house was extended to provide space for a dark room with projection windows opening to living room

RESIDENTIAL STAIRS

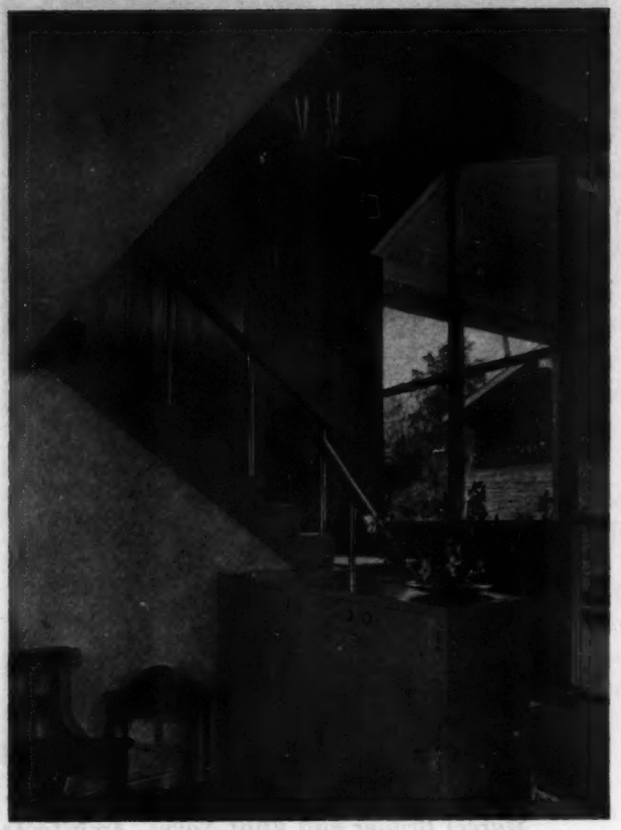
7 ***Akron, Ohio. Victor Hornbein, Architect***

8 ***Hunts Point, Wash. Young & Richardson, Carleton & Detlie, Architects***

9 ***Sausalito, Calif, Shubart & Friedman, Architects***

10 ***Oak Creek Canyon, Ariz. Harold Ekman, Architect***

11 ***Chapman, Ala. Huson Jackson, Architect; H. Seymour Howard, Jr., and Harold Edelman, Associates***



Chas. R. Pearson

8

Ernest Braun

9

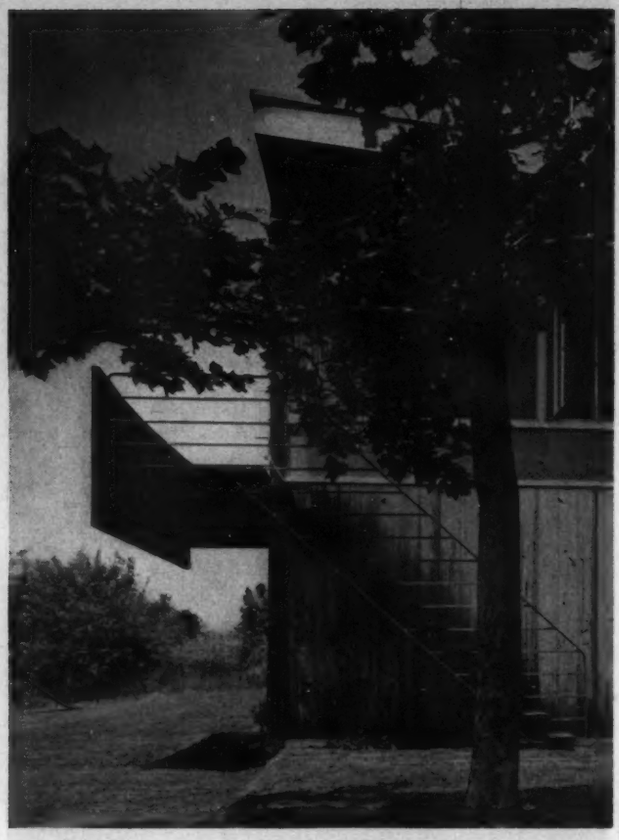
Stuart Weiner

10

11

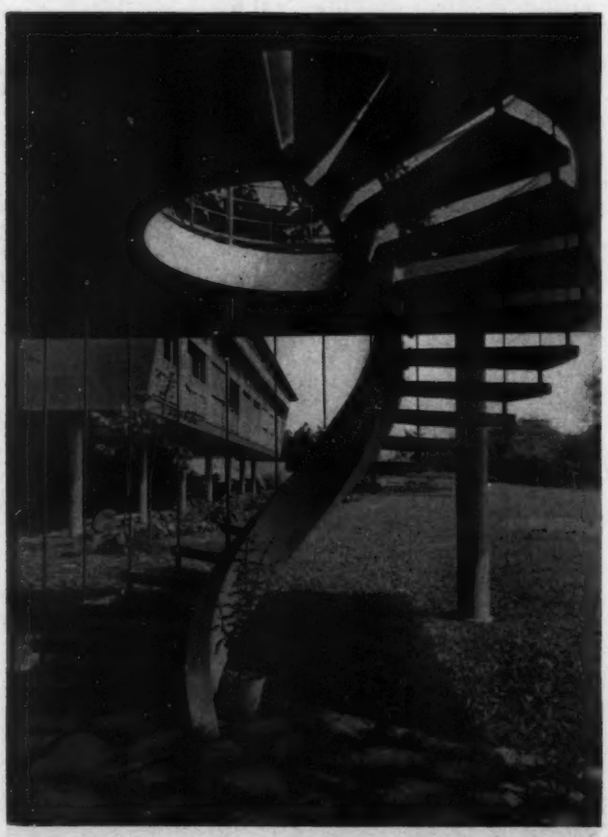
Julius Shulman

12 *Beverly Hills, Calif.*
Richard J. Neutra, Architect



Ben Schnall

13 *New Canaan, Conn.*
Marcel Breuer and Eliot Noyes, Architects



Curt

14 *São Paulo, Brazil*
Rino Levi, Architect

R. Wenkam

15 *Honolulu, T. H.*
Wimberly & Cook, Architects

the SCHOOL and the COMMUNITY

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY ®

224

YEARS AGO we half suspected that the phrase "school-community interrelationship" was high flown verbiage intended to justify a gymnasium and an auditorium in a school where such luxuries didn't belong. The suspicion may occasionally have been well founded. But the more we see of schools, the more we realize how intimately they do interact with their communities, sometimes subtly by simply providing opportunities, sometimes overtly in frontal attack on a community problem; here seizing upon and thoroughly developing manifest opportunities, there gently urging the community in the direction its tentative, imperfectly expressed ideations demonstrate that it would go if it only knew how.

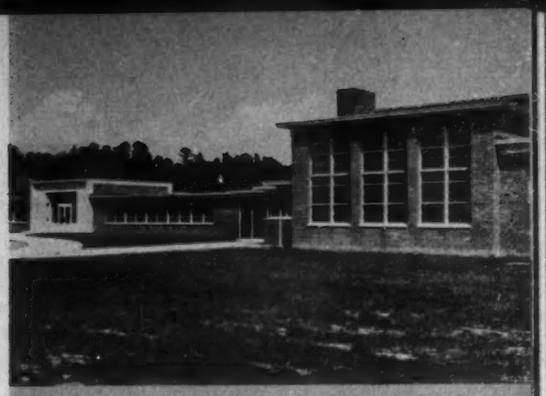
We still suspect that a lot of stuff and nonsense is written about this romantic, intangible subject, so we have no intention of discussing it here in the abstract. We won't include stories about the mountain community where a children's program in the school virtually eliminated certain kinds of disease, or claim for architects any more than their share of social responsibility. We give you here, instead, four long, thoroughly documented case histories presented in detail, four different instances of school-community-architect-educator interaction.

The Maryland school is a small rural plant designed, in a sense, to help an area lift itself by its bootstraps. It has been operating only a year, and the community isn't too sure that its new plant is any good. Yet the buildings it now has offer opportunities which, by their mere existence, can stimulate improvement which may some day blossom. The Brooklyn school is an urban experiment, the best example we have yet seen of great New York City's determination to improve its educational facilities. What makes it so exciting is the consciousness of the school's importance and the way this has been made a design determinant.

The suburban St. Louis school is being built for a community eager for the most advanced educational theory, beset by unprecedented growing pains, and pinched for money. This too is an experiment; the intent is to turn out into the community the best citizen-graduates possible, and that at a reasonable cost. The history of the suburban New York school is one of literally thousands of professional man-hours spent leading a newly created district from disunity and uncertainty to a point where all agree that positive educational goals seem at last attainable. Here there is an unanswered question: how is this extra professional guidance, so often and so desperately needed, to be paid for?

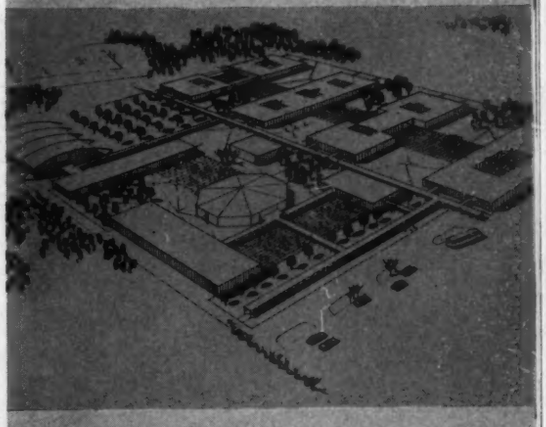
Indeed, all of these case studies raise questions. The values we see in all of them cannot be proved out now. Years or maybe decades hence perhaps they can be fairly assessed. That is one of the tantalizing things about school architecture; proof takes lots of time.

— Frank G. Lopez, A.I.A.



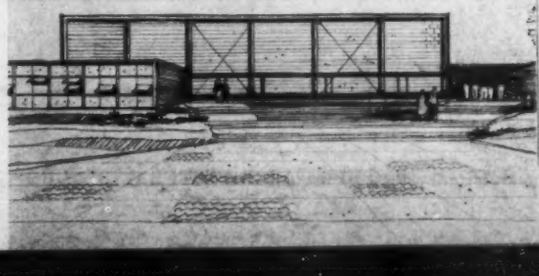
On Maryland's Eastern Shore: a high school without classrooms
Finney, Wolcott & Associates, Architects

In Brooklyn, N.Y.: vocational high school with a social purpose
Katz, Waisman, Blemenkranz, Stein, Weber Architects



In a St. Louis, Mo., suburb: high schools within high schools meet the budget
Hellmuth, Yamasaki & Leinweber, Architects

Near Katonah, N.Y.: comprehensive architectural services for a regional high school
Ketchum, Giná & Sharp, Architects



SMALL SCHOOL DESIGNED

All photos of the Maryland countryside by A. Aubrey Bodine, F.P.S.A., F.N.P.P., by arrangement with Hastings House

This is the countryside: left, air view, Blackwater National Wildlife Refuge, adjoining the school; right, a waterway, Hooper Islands in background

FOR A BIG JOB ON MARYLAND'S EASTERN SHORE

by Stanton Leggett

WATER AND LAND, sometimes separate, often mixed and blended, never more than a few feet apart in elevation — this is the southern end of Dorchester County. A part of the sandspit peninsula known as the Eastern Shore of Maryland, the land dips and mingles with the water to form countless swamps, coves and islands, catching a people and a way of life in its intricate pattern.

The highway dwindles to a narrow road that forces passing cars to the sandy shoulder. The road runs through empty miles of freshwater swamp and shallow lakes dotted irregularly with humps of land where trees stand black against the flat sky. The road crosses bridges and long wooden causeways to come to an end at Hooper's Island and Little Hooper's Island.

All down the various points of land that project into the Bay, the roads behave in the same way. At one point a brilliantly white causeway that gets mixed up with gray fish sheds comes to a stop against the vivid green of Taylor's Island. At Golden Hill, eight feet above mean high water, the road forks. The right fork leads to the Hooper Islands while the left fork winds down to Crapo, passing farmhouses in the Early Dorchester style, many of which are abandoned.

The roads are alien; for the villages and the people have turned their backs to the land and faced the Bay and the open water. It was not long ago that the roads were not there, and the water was the highway along which the products of the Bay and, less frequently, the people of the Bay, made their way to the small towns — Cambridge, Annapolis, Salisbury, Pocomoke, or even on to Baltimore.

The land never had been inviting. Water ooze, tufts of dry land, all intermixed and blended, these are not the ingredients of modern farming. The Bay, too, in recent years proved less and less hospitable as its bounty diminished. Overfishing with modern technological devices reduced the harvest to a point

The countryside is far from bleak, though its population has been dwindling; the adjoining states have begun cooperative efforts to conserve the Bay's resources. Above, the town of Nanticoke; right Blackwater Reservation

SCHOOL AND COMMUNITY: MARYLAND

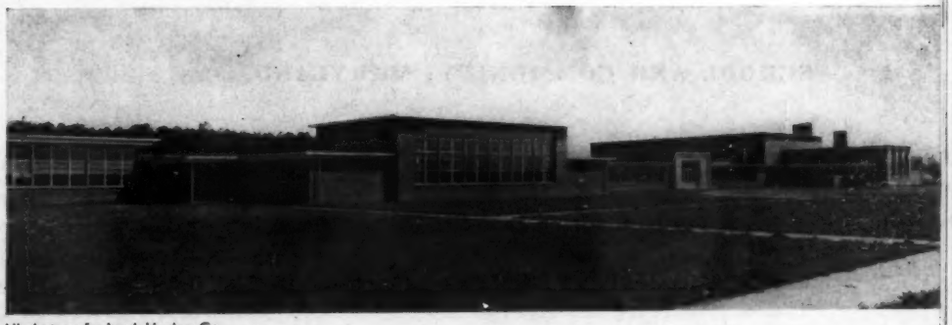
SOUTH COUNTY
JUNIOR-SENIOR HIGH SCHOOL
Dorchester County, Md.

Finney, Wolcott & Associates
Architects

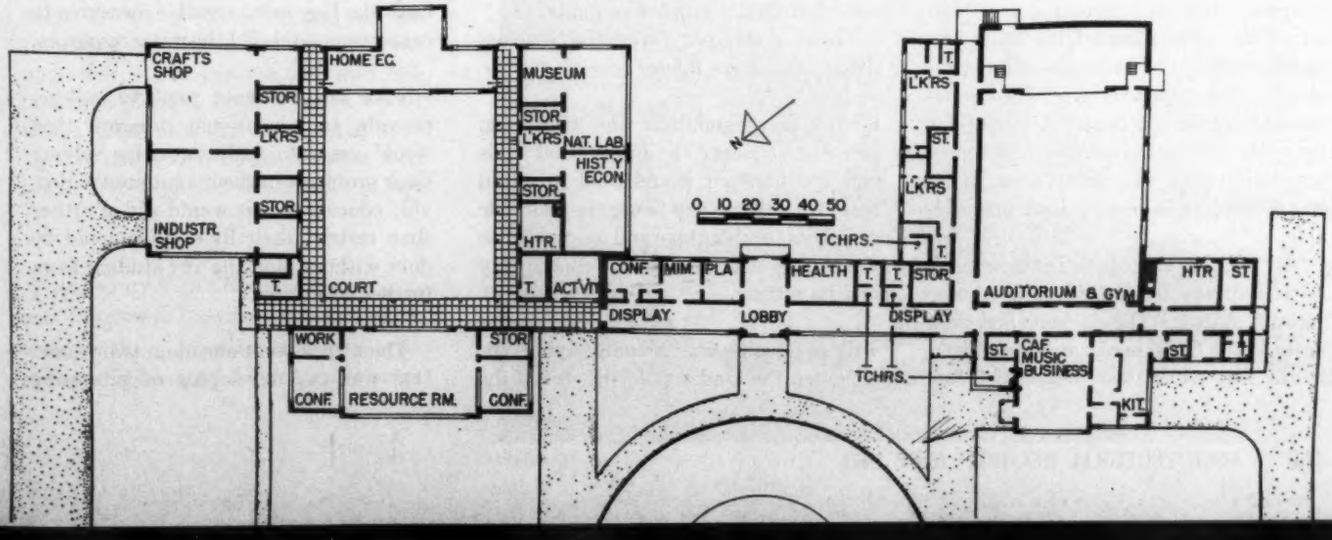
Engelhardt, Engelhardt & Leggett
Educational Consultants

A. Aubrey Bodine

South County High School has no classrooms as such; its enrollment is small, its funds scarce. It was designed to help coming generations capitalize on unique regional opportunities yet not limit the pupils' chances for development. Whether these aims will be achieved it is too early to tell; the school has been in use only one year, and the Superintendent under whom it was designed has been elevated to a position in the state educational system



All photos of school: Hughes Co.



SCHOOL AND COMMUNITY: MARYLAND

where the future is bleak. Rivalry between the sovereign states of Virginia and Maryland did not help as politicians bickered and the fish were obliterated. The resources of the Bay were dwindling and man was to blame and, at the same time, the victim.

Against this background a new high school was to be planned, replacing two smaller schools. The combined enrollment in the upper six grades was estimated to reach 150 pupils. Although far too small a school ordinarily, the sparse population and the great area to be served made the small school unavoidable.

The existing schools were traditional. As the survey by the educational consultants stated: "The students had their noses in the Latin books and their backs to the Bay while their means of future livelihood disappeared." The communities were dwindling and their economic bases were tottering. Can a school and its program be so designed that students are equipped to deal with their environment? Can a school help rebuild its community? It is too early to know in this case, but the attempt was made.

These, in summary, were the basic decisions that were made:

• Since the population was dwindling, give the students the intellectual tools and insights that would tend to retain them with the ability to use the available resources to advantage and to appreciate the values inherent in the community and its setting.

• Since farming was virtually dying out, although the land was fertile, teach the students how to use the land and how to use their intelligence to learn, or develop, farming techniques that would work in this strange half land half water.

• Since the resources of the Bay were dwindling, teach the students how to farm the Bay using sensible measures to conserve and rebuild the water resources.

• Since few students went to college, provide an educational program that would generate enthusiasm for solving their problems in their community. Provide education that would widen rather than restrict their lives. This could be done without blocking any student from further education.

The attack went ahead on two fronts. One was the developing of promising

The countryside's marine resources have traditionally dominated along the Eastern Shore: facing page, oyster dredgers working in a driving rain; below, dredges (locally pronounced "drudges") in Cambridge harbor; right, "buy boats" at work taking off oysters and running them to packing houses

A. Aubrey Bodine

leads and ideas to further the program of the high school. W. T. Boston, then Superintendent of Schools, found farm machinery, crops and techniques that had been used in similar swampy country. Soil analysis showed that the south county area was more fertile, if also more watery, than the prosperous farming areas of the northern section of the county. Even before the building was underway, cedar cypress and wild rice had been planted, both of which would thrive in the area and represented marketable crops. A large government wild life reserve adjoining the school site had

South County High's Resource Room, right, was designed to house ideas for use of the environment — an active workroom with storage, display, conference, research areas

Hughes Co.

Other resources of the Eastern Shore: right, muskrat trapping, logging loblolly pine; facing page, pound netting for Chesapeake shad; below, duck hunting, so popular that land like this is astronomically priced though it brings local people comparatively little profit

A. Aubrey Bodine

SCHOOL AND COMMUNITY: MARYLAND

Science laboratory, South County High School, contains a science museum area designed as a live demonstration of the role of science in improving community life, with aquariums on wheels, movable growing beds, access to outdoor growing areas, a large quantity of storage space

Hughes Co.

been made available for use by the school. State authorities in conservation were interested in the school and offered help. The State Education Department offered to make additional staff available. It looked as though the resources could be found to do the job.

The second aspect of the attack was the planning of the school building.

The school was to have ten teacher stations, representing a very favorable pupil-teacher ratio, yet a ratio that is forced in part by the small student body. The architects were required to design the building in anticipation of a future elementary school unit that would also use the general spaces, such as cafeteria and auditorium-gymnasium.

A small school is difficult to develop with rich educational resources. Finally, the then Superintendent decided that "we couldn't afford classrooms." Instead, the specialized spaces required were planned together with, in all cases, discussion areas that could also be used for more formal class purposes.

The building was planned about an active resource center. It was the thought that, in addition to a normal library function, this space would serve to collect the materials from any place in the world where people were coping with similar problems.

Here, too, the results of student research would be assembled as a foundation upon which succeeding generations of students would build. The members of the community would find this resource room a treasury of ideas about how to use their environment.

The resource room was conceived of as an active workroom. It was equipped with movable shelf units and storage spaces. The low window wall along the open corridor was seen as a great display window, recording achievements of pupils and community members in meeting some of the challenges of the school. Small meeting rooms were provided off the large resource room.

The science laboratory offered flexibility in arrangement, was heavily loaded with storage, and contained a science museum area. The museum was seen as a live demonstration of the role of science in improving community life. Large aquariums on wheels were provided to allow the reproduction of the bottom of the Chesapeake Bay for study by the students. Movable growing beds indoors and easy access to outdoor growing areas are provided.

Two large work areas are provided for

crafts and for the industrial arts. Each of these rooms has a discussion area that can double for class use, in view of the small classes anticipated. In the general shop it is expected that boat building and marine engine work will be accommodated, as well as repair of farm machinery. The school site includes a wharf and water frontage not far removed from the building. A well developed homemaking unit is provided, as well as a community study laboratory that will be the focus of the social studies program.

Combination spaces seem unavoidable in the small school. Here a gymnasium-auditorium is provided. The cafeteria serves many purposes. Music and business education work are planned for the room with special storage space designed for these needs. The cafeteria also serves as a social room with the use of its fireplace and pleasant views. Since the students are so widely scattered, this function acquires greater importance. In the planning of the school, the schedule set up provided a free period of time at the end of the day. The cafeteria-social room was thought of as an informal meeting place for the students. A door from the room leads directly to the bus-loading area.

The administrative spaces reflected also the pioneer nature of the school program. Main units are health suite, a planning area, a conference and work room, and a student activity room. Again, by planning and thinking together, with staff, students and persons from the community taking part, it was hoped that slowly a group of people of varying ages would show the ability of man to use his intelligence to solve the problems of living a better life.

Music and business classes are held in cafeteria (above) of South County High; note prints of famous Bodine photographs, also used in these pages. Gymnasium, right, though not essential to school program, is a source of community pride

People along the Eastern Shore: far left, a waterman

Left: 300,000 people fish for fun in the Bay every year

Right: Melvin Collier, blacksmith, whose oyster "drudges" reputedly insure profitable hauls

A. Aubrey Bodine

Hughes Co.

VOCATIONAL HIGH SCHOOL TO DO A SOCIAL JOB

WILLIAM E. GRADY VOCATIONAL HIGH SCHOOL, BROOKLYN, N. Y. Katz, Waisman, Blumenkranz, Stein, Weber, Architects. Leo A. Novick, Landscape Architect. Farkas & Barron, Structural Engineers; Benjamin L. Spivak, Electrical Engineer. Consultants: John C. Mason, Food Service Equipment; Arnold Bank, Lettering. Artists: Ben Shahn, Murals; Costantino Nivola, Sculpture

WILLIAM E. GRADY Vocational High School has existed in Brooklyn for some time, but without buildings of its own. It has used facilities in several school annexes, and has given its series of courses without having any physical entity. Vocational training has not been too popular with pupils; indeed, it is suspected that being sent to Grady seemed only a little worse than being sent to Siberia.

The school, then, has more than a simple vocational job to do. New York City's Board of Education and the city's school administrative staff, acting through their Chief Architect, Michael L. Radoslovich, and the Board's Bureau of Construction, have worked with the architects to produce a design for the $6 million plant that will help city youngsters become both "good providers" and good citizens. Early in the design process it was decided that insistence upon high quality of materials and craftsmanship was one of the best means of inducing an attitude of healthy interest and pride in vocational training; and that the same qualities would, in rousing pride of place, help to curb somewhat the destructive instincts that seem to characterize some city children. Also, there are other institutions on adjoining sites, so Grady could contribute to development of a community cultural center.

The site fronts on Shore Parkway and Brighton 6th St. Its buildable area was severely restricted by a trunk sewer beyond which construction could not be planned, although the remainder of the block is to be developed for school-community recreation by the Department of Parks. In one corner of the site is a Police Force Remount Station,

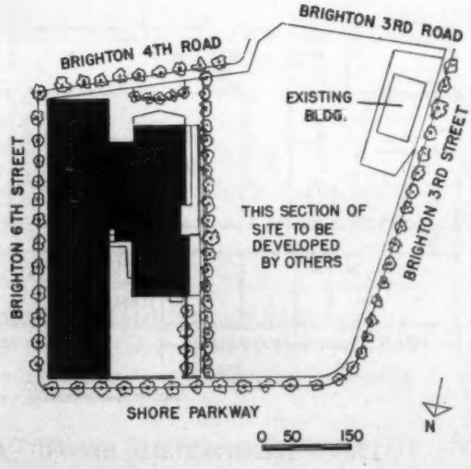
WILLIAM E. GRADY VOCATIONAL HIGH SCHOOL
BROOKLYN, NEW
BOARD OF EDUCATION - CITY OF NEW YORK
KATZ WAISMAN BLUMENKRANZ STEIN WEBER
ARCHITECTS ASSOCIATED

Photographs of Brooklyn by Jerry Dantzic

which is to remain. The school could not be developed horizontally; it had to be multi-story; and design difficulty was increased by the difference in size of the shops (there are 33 of these) and the classrooms as well as the school-community facilities (auditorium, gymnasium, etc.) and cafeteria requirements.

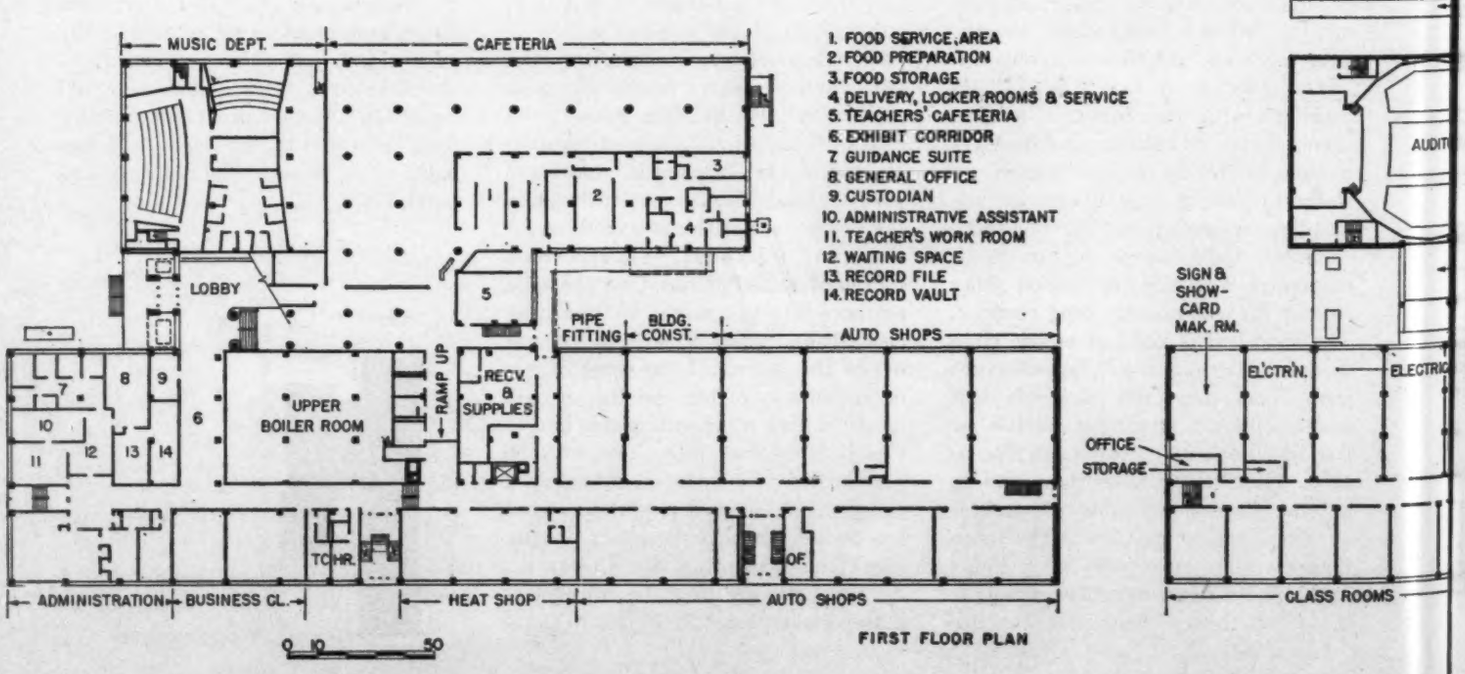
The solution is two "blocks" of buildings with the entrance between them, taking advantage of differences in story heights by means of ramps and stairs to gain greater height for the first-floor shops that need it. The shop-classroom block, which appears to be one unit, is virtually two, one on either side of the unavoidably long corridor. The shop half is laid out to one large module, so columns will not interrupt shop floor space; the classroom half has a different structural module or bay based on end-on classroom dimensions. The corridor unites them, and, in general, classrooms relating to a particular shop are near that shop. The shops themselves are on several floors, zoned so that noisy areas, shops for light work, those for "heavy" activities, etc. are related and organized in plan to minimize interference.

The School is designed for approximately 2000 boys; another floor can be added to accommodate 500 girls. In keeping with the purpose of making it an example of the creative results of modern technology and fine artisanship, the materials selected include the most modern that the building industry can produce: tempered and heat-resistant glass, glazed brick, enameled metal wall panels, aluminum sash, etc. Included in the budget — and this is something for the city to be proud of! — is a provision for sculpture and murals. Over the main entrance is to be a mural, 50 ft long, by Ben Shahn, which it is expected will depict the impact of the machine age on man's way of life and the changes in our culture which will enable him to exploit technology fully. This may be executed in terra cotta, or, if funds can be procured, in mosaic. Another wall has been designed to receive an equally important sculpture by Costantino Nivola. Lettering over the entrance is in a special alphabet, to be cast in metal in such a way that the marks of craftsmanship are transferred from the forms to the finished letters; interior directional signs use a similar alphabet executed in terrazzo and outlined with terrazzo dividing strips. The auditorium design is determined by an acoustically correct wall and ceiling surround; its unusual shapes, it was found, were best defined by a single source of illumination from the rear of the seating area. Downlights give enough light for taking notes, etc.

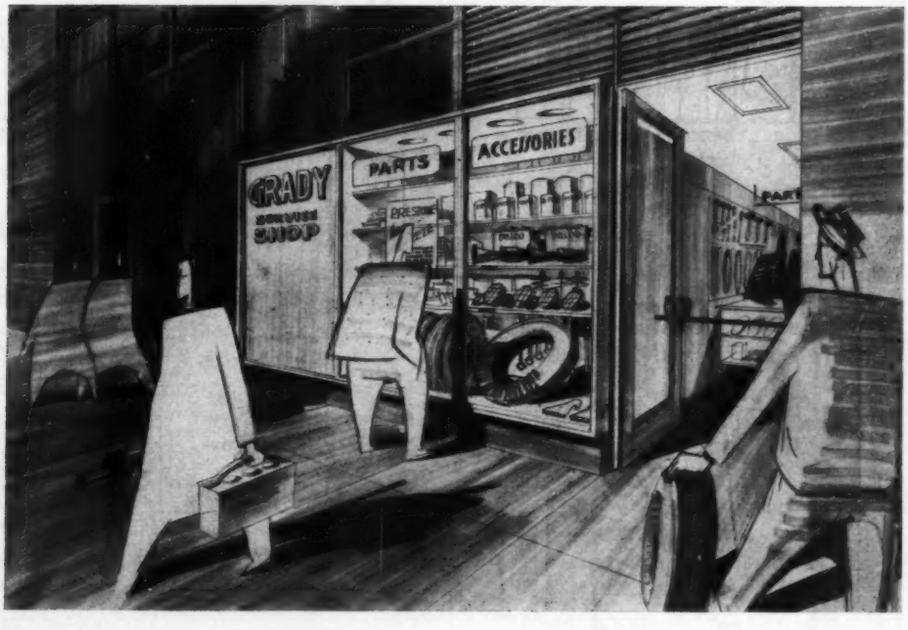


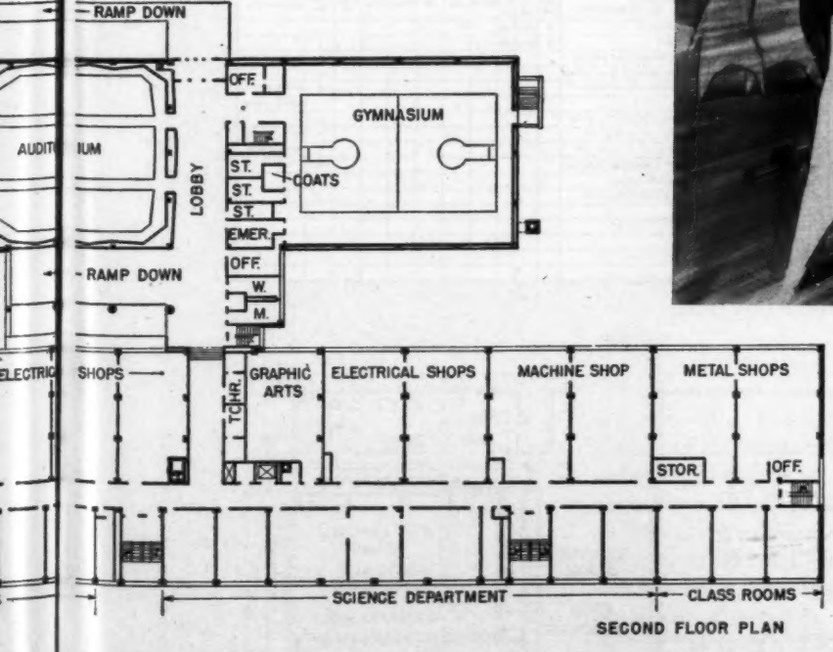
Brooklyn, N. Y. is both like other urban areas and quite different. These views of it are typical: streets that seem crowded even when they are empty, traffic hazards, elevated transit lines, bridges and waterfront where the tall buildings are (mostly, though, its structures are low); a place of many small industries, branches of big industry, of crowded dwellings and playing in the street where many of the best schools — and there are several excellent ones — are architecturally long outmoded

SCHOOL AND COMMUNITY: BROOKLYN, N. Y.



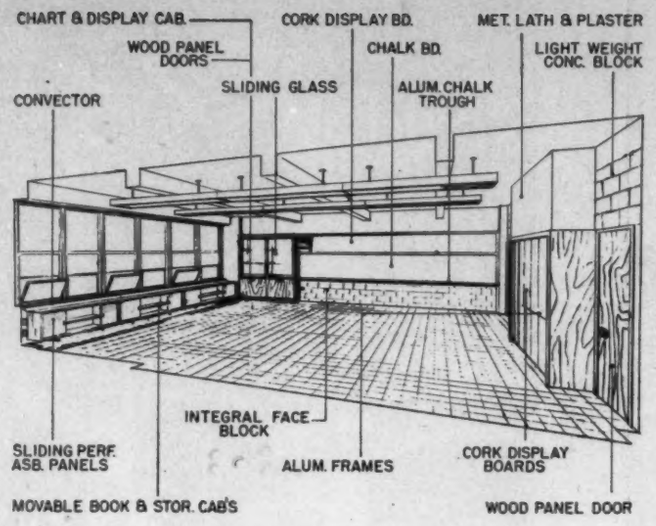
FIRST FLOOR PLAN





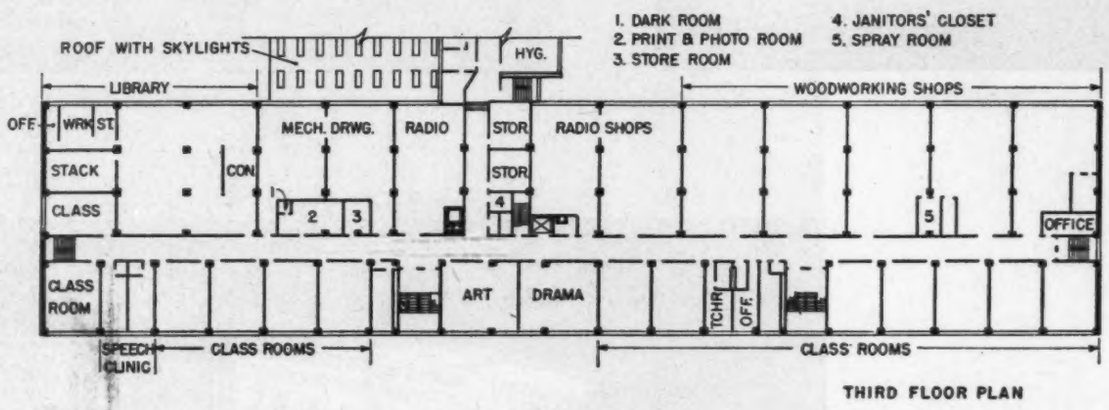
SECOND FLOOR PLAN

Throughout Grady Vocational High School efforts are being made to develop interest and pride in schoolday surroundings, to provide more than trade skills for future citizens. Not only are there to be murals and sculpture by excellent artists; materials and craftsmanship of construction will be of high quality; there are such extras as the auto accessory store, above, for the auto shop



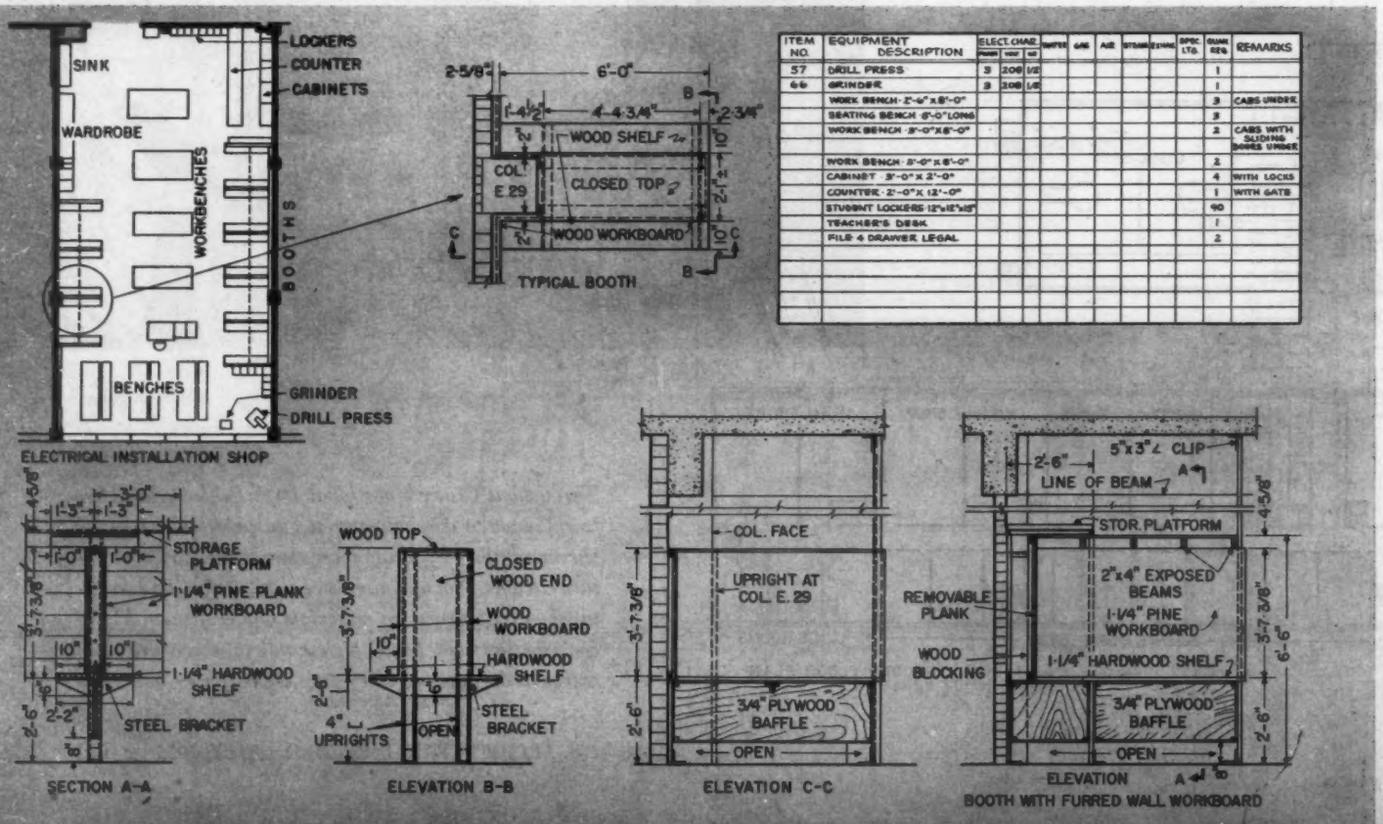
Classrooms are designed to achieve a pleasant atmosphere and to keep maintenance costs low. Chalkboard-cabinet units extend from floor to underside of beams; walls under chalkboards are colorful integrally-faced block. Windows extend to underside of spandrel beams and have cabinets beneath them; corridor walls are permanent cabinets and the same integrally-faced block, the only paint being on the plenum chamber above door height. A complete color specification, for floors, walls and ceilings, including materials, paint, etc., was furnished the Board of Education. Below is one of the 33 shops; on all of these extensive, detailed studies were prepared after research in collaboration with the city's vocational specialists.

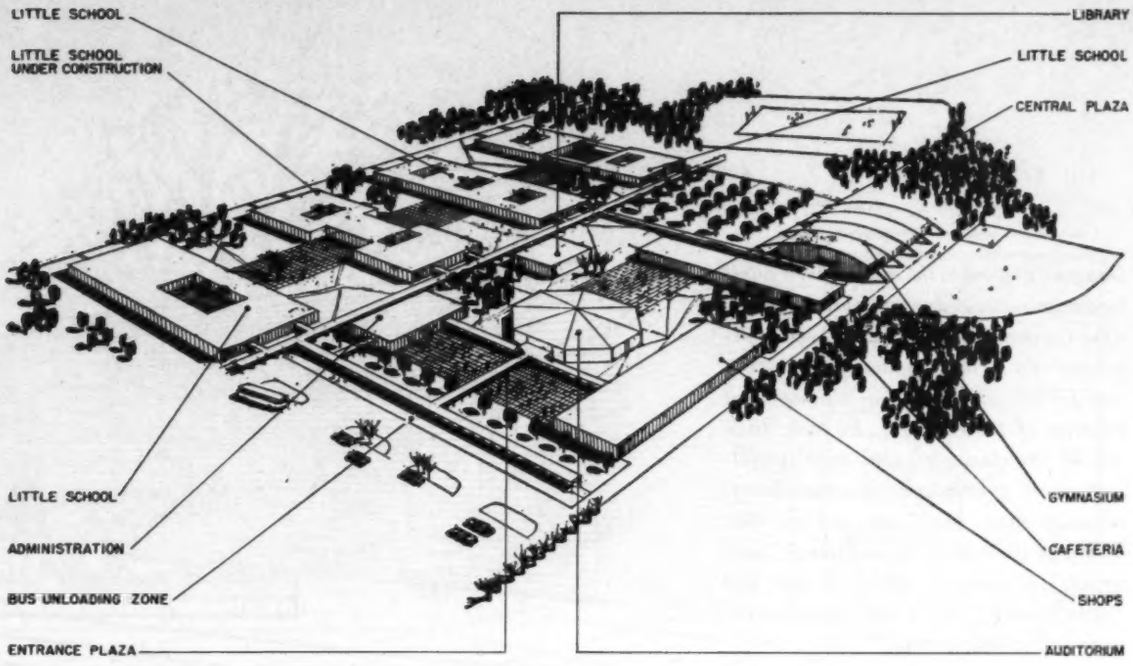
SCHOOL AND COMMUNITY: BROOKLYN, N. Y.



THIRD FLOOR PLAN

Electrical Installation Shop, below, is typical of extensive research; there was no precedent for much equipment





GROUPED SMALL SCHOOLS FORM LARGE HIGH SCHOOL

RIVERVIEW GARDENS SENIOR HIGH SCHOOL, Riverview Gardens School District, St. Louis County, Mo. Hellmuth, Obata & Kassabaum, Architects; W. P. Manske, Associate Architect. Engelhardt, Engelhardt & Leggett, Educational Consultants. E. M. Lemasters, Superintendent. Ferris & Hamig, Mechanical Engineers; J. P. Nix, Structural Engineers

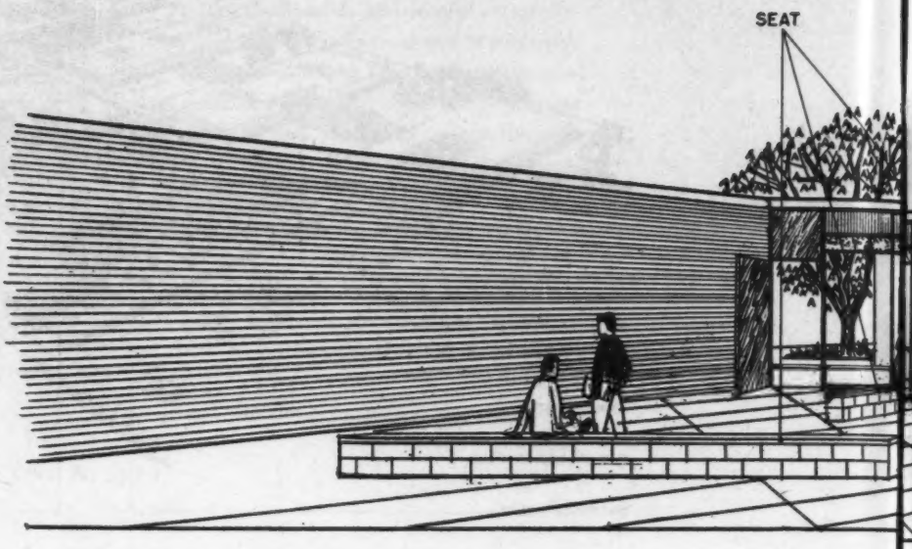
A NEW TYPE of high school is being built in the suburban Riverview Gardens district near St. Louis. As the first of its kind, first to have its educational implications fully studied, its pros and cons thoroughly debated in concrete terms, and its buildings actually started, this high school will be carefully watched, verbally dissected, discussed and weighed by educators and architects alike.

The underlying idea, called the "little school" concept, has been talked about for some time. Examples are in various stages of development in a few communities, but in none the editors have seen have the talents applied to the problem been so free and imaginative, or the concept so completely dominant. At the same time, the capacities of teachers to teach, of pupils to learn and grow, of the community to pay, have been constant directives as the design has developed. Indeed, these are fundamental to the 'little school' idea.

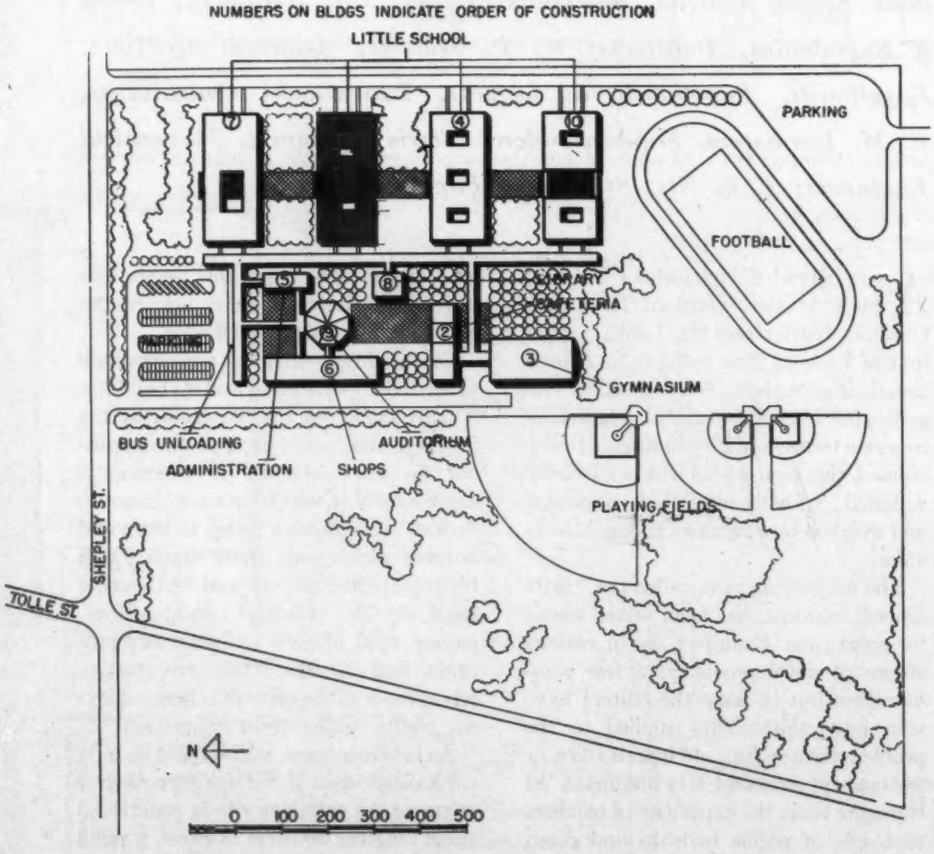
One might say that this new approach to secondary education and its buildings is determined, on the one hand, by the desire to treat each pupil as an individual, to place him in an educational environment in which he has a chance to "count" as a human being, to learn and develop within only those limits which his own abilities dictate; and, on the other hand, by the practical considerations: money, staff, efficiency of plant and program, and the like. There are positive advantages as the concept is here achieving reality, and certain difficulties.

As to advantages, which must be fully capitalized upon if the new approach is to prove out satisfactorily in practice: a small building housing, in effect, a small yet complete high school can attain an

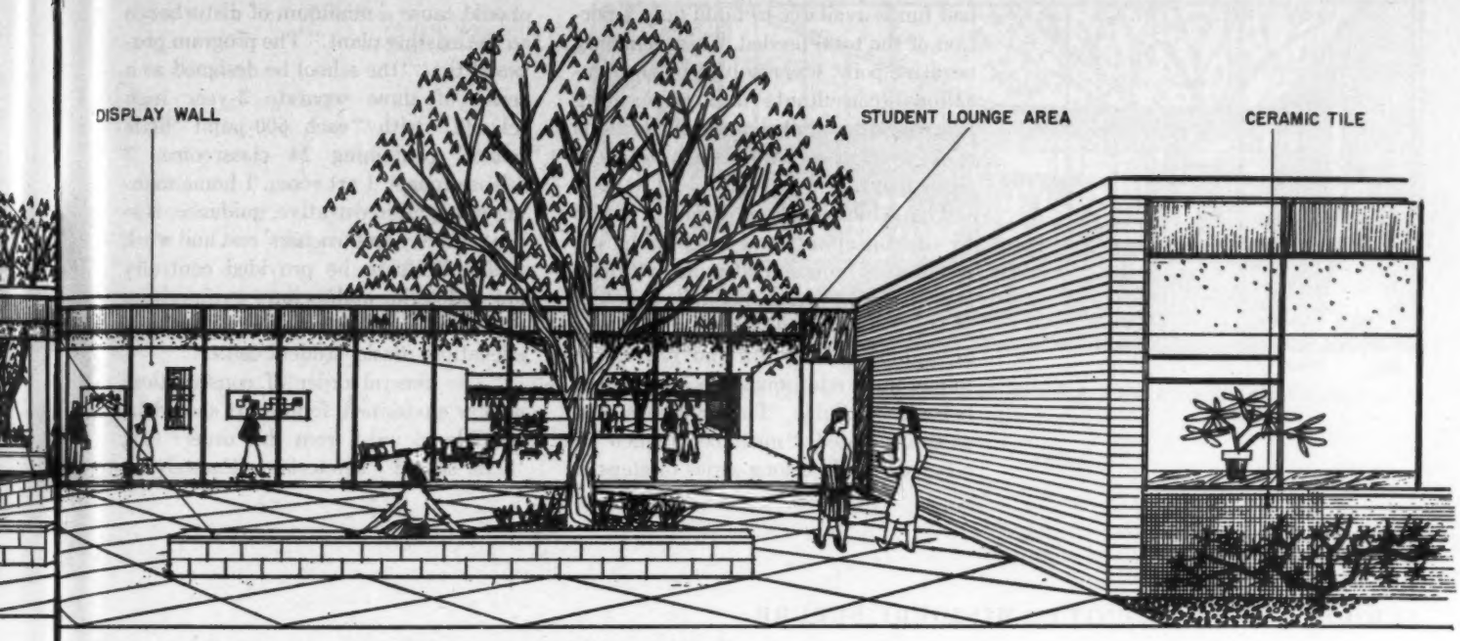
Designed to grow as the community's pupil load requires and finances permit, Riverview Gardens Senior High School is developed as a series of separate high schools, each for 600 pupils, with an ultimate total capacity of 1800 to 2000. In each "little school" are classrooms and some specialized spaces; gymnasium, cafeteria, library, administration, shops, etc. are in other buildings to be built as additional "little schools" are erected. Right, terrace, first "little school," now under construction, opens off student lounge



SCHOOL AND COMMUNITY: MISSOURI SUBURB



identity of its own within the larger whole (each little school at Riverview Gardens is designed for 600 pupils; total enrollment may eventually reach 2000). In such a small unit each pupil can be an individual. Contact between pupils and teachers can become personal; instruction, also, becomes almost individual; classes can be smaller. Within such a homogeneous unit it is relatively easy to apply the educational techniques which have, in recent years, been extended to secondary education — the "common learnings" program, for instance, or one of the several parallel pedagogical theories that have been developed and often imperfectly put into practice, quite often (even architects must admit) because the school buildings were not appropriate. A school plant composed of a group of little schools and their jointly used, separately housed general facilities can be designed so that each unit is not only humane in architectural character — that is, so that it furthers the educational ideal of developing the best that is in each student; the whole plant can achieve its own kind of monumentality to satisfy the very legitimate community pride in its schools and their structures. This new kind of monumentality is not one that seeks to over-awe, as do the



PERSPECTIVE OF OUTDOOR COURT LOOKING TOWARD STUDENT LOUNGE

monstrous city and suburban schools we have been used to; it requires of the architect real talent; he must make of the group of buildings a composition that will impress by its perfection; he can no longer pile materials on top of materials, hoping to crush the observer with sheer mass — and often succeeding.

But we were writing of advantages; and this difficulty of design is, after all, an advantage as far as the community is concerned: the layman on a building committee will find it easier to spot the meretricious or the ill-considered! Properly designed, too, a group of small buildings can cost the community less than a huge structure; it can be laid out to turn features of a difficult site into positive values; and it can be built piecemeal, as finances permit.

There are difficulties, some real ones: not every community or school system is ready to undertake a new approach. The right kind of staff is hard to get — though that seems always to be true no matter what the program. The unpretentiousness of each building may be hard to appreciate. Certain facilities required in each little school building if it is to be a nearly complete high school — science laboratories, for instance — may seem hard to justify from the point of view of efficiency, considering the problems of scheduling, full utilization of expensive equipment, etc. More difficulties become apparent as one studies the concept.

Yet in the main the difficulties are due more to a halfway acceptance of the idea than one might suppose. They seem to derive principally from adherence to familiar educational programs and methods. The little school concept, for instance, contemplates a different kind of use of a science laboratory, one in which science becomes a part of other branches of learning and the other branches are, conversely, integrated with laboratory work; this is not the traditional way.

At Riverview Gardens, the responsible citizens of the community, the local education administrators and school staff, the educational consultants and the architects have jointly applied to their secondary school problem a degree of thoughtful imagination which is commonly encountered only in elementary school design. In discussing the building with us, the architects listed certain factors of basic importance which they believe are usually unresolved in secondary schools:

"1. Scale — most high schools are monumental in character and size, overwhelming the pupil; the trend should be away from mass concentration to sizes and scales easily grasped by the pupil.

"2. Growth — the plan should allow for curriculum changes and easy expansion.

"3. Classrooms — should allow for flexible internal arrangements, should consider storage, work counter and display areas.

"4. Circulation — the high school pupil spends as much time in the corridor as in any one classroom; corridors should be designed with care, not just lined with lockers and forgotten.

"5. Social area — space for students to meet and develop extra-curricular activities should be considered.

"6. Community use — site plan should provide easy access of public to auditorium and athletic area.

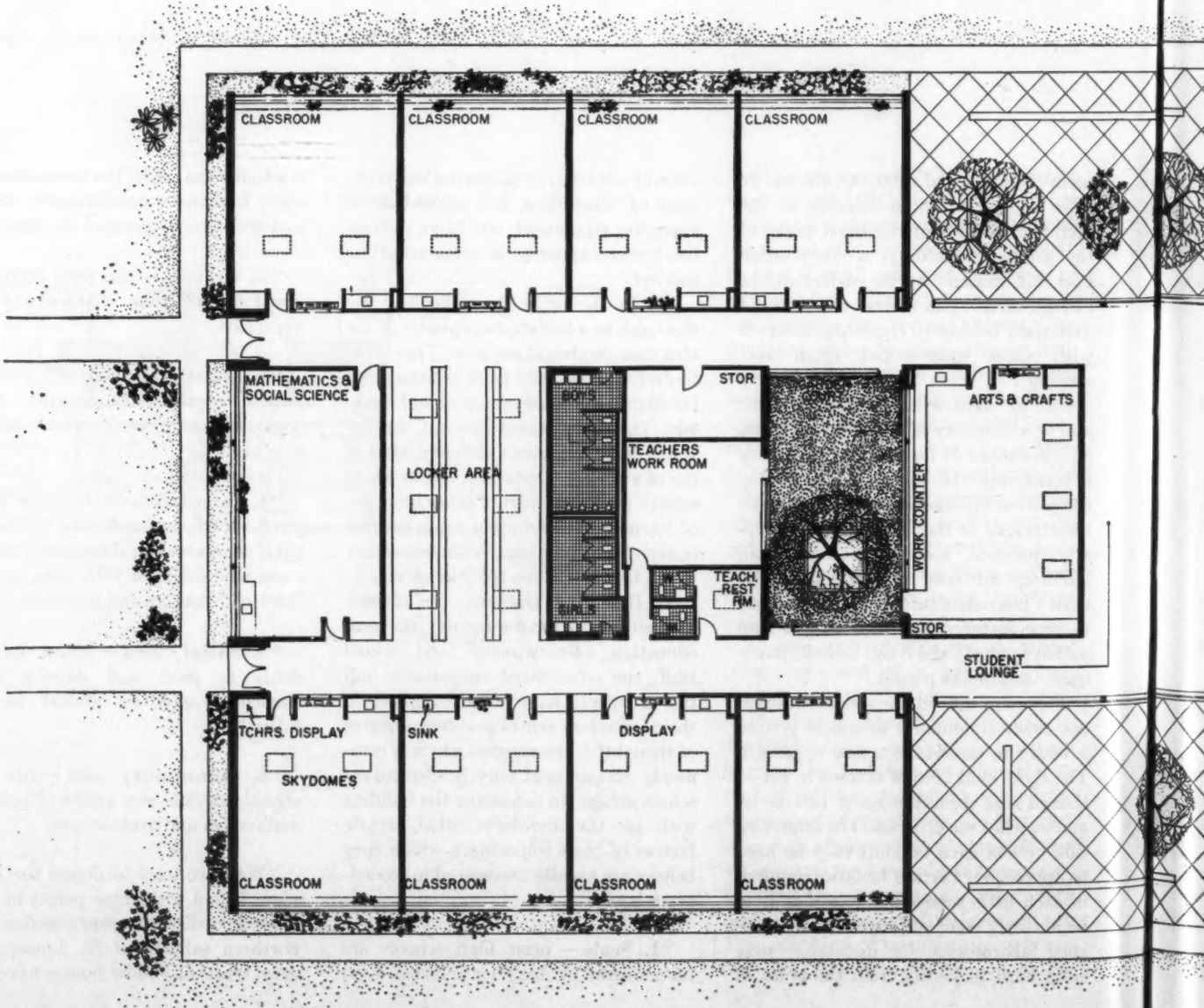
"We have tried to design the Riverview School with these points in mind. The school district serves a section of the northern suburbs of St. Louis, where great tracts of builder houses have over-

night doubled the population. The community needed a senior high plant but had funds available to build only a portion of the total needed. This seemingly negative point was resolved by the educational consultants into an exciting program that fulfilled many of the needs of every high school as we have listed them above."

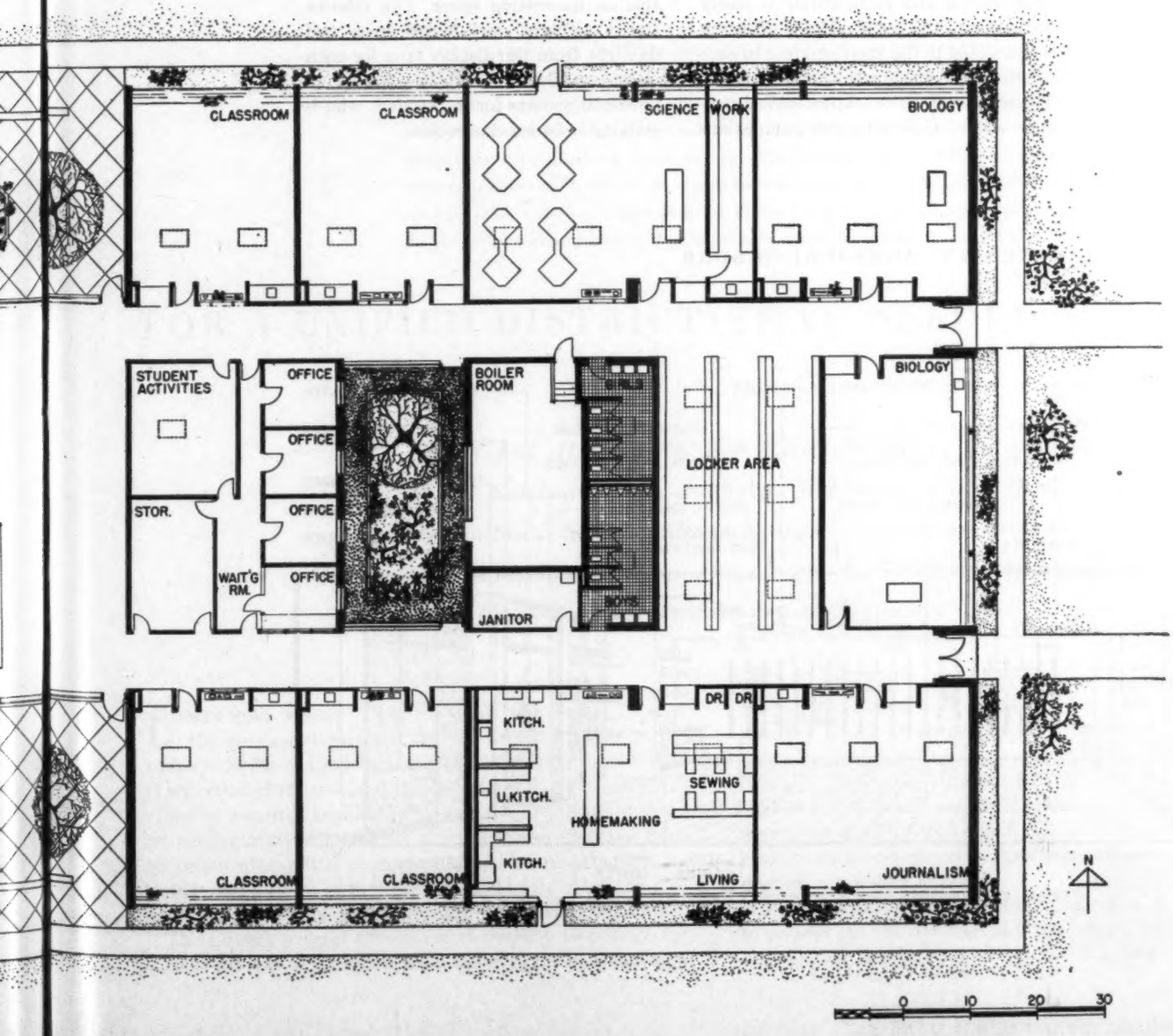
The educational program prepared by the consultants and accepted by the community contemplates an ultimate capacity of 1800 to 2000 pupils in grades 10–12, although initially the school may accommodate only 9th and 10th grade pupils until additional special facilities become available. The buildings, the program stated, "must be planned for construction in a long series of steps as money becomes available and as enrollments dictate. Additional construction should cause a minimum of disturbance to the existing plant." The program proposed that "the school be designed as a series of three separate 3-year high schools," with "each 600-pupil 'little school' containing 14 classrooms, 3 science rooms, 1 art room, 1 home making room, administrative, guidance, student activity and teachers' rest and work space. Units to be provided centrally are: cafeteria, auditorium, gymnasium, central administration, shops, business education, music, student center.

"The general order of construction, as now envisioned, follows. It should be possible to vary from this order: first 'little school'; cafeteria (ultimately to

SCHOOL AND COMMUNITY: MISSOURI SUBURB



PERSPECTIVE OF INTERIOR COURT *(TO BE USED AS OUTDOOR WORK AREA FOR ARTS & CRAFTS)*



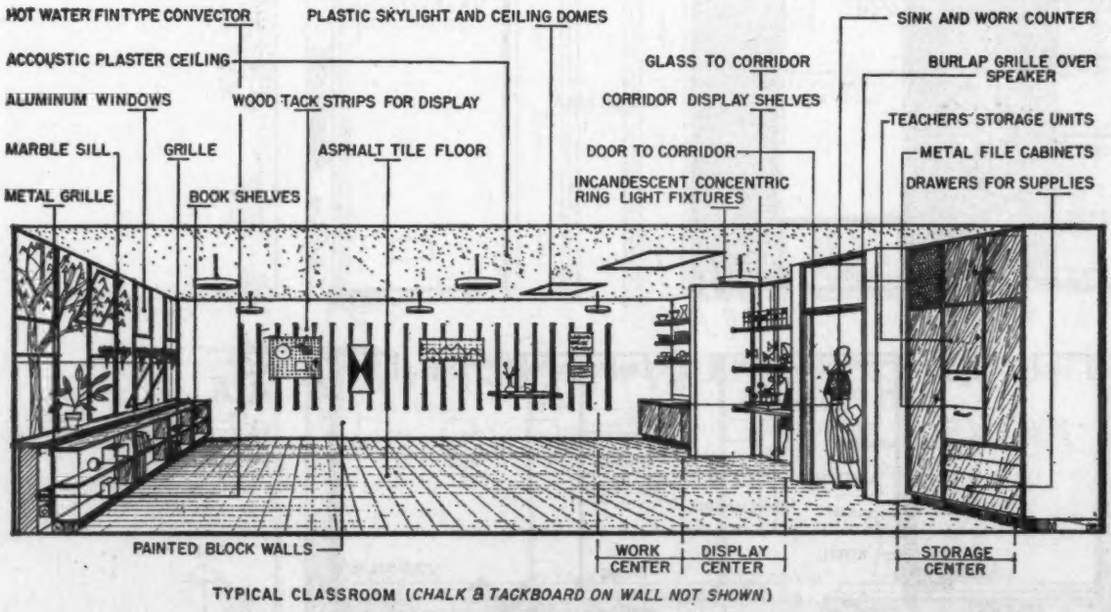
seat 600, but designed as three 200-seat dining rooms, only two to be built now and one of these to serve temporarily as a library); gymnasium; second 'little school'; central administration; shop, business education and music facilities; third 'little school'; library; auditorium; final 200-seat cafeteria unit." From this beginning the program proceeded by degrees into detailed considerations: area requirements, advice on costs, organization of the spaces, land use, development of special areas.

To quote the architects again: they "looked at a number of sites with the school superintendent and helped select a 40-acre site. We began our study with a master plan; the 'little schools' are grouped together on the site's high ground. Different forms of 'little schools' are shown because design of the units can be varied with curriculum changes and with lessons learned from the first one. The library, centrally located to all the schools, overlooks the main plaza. On one side the 'civic' group (central administration and auditorium) is easily accessible to the public. The auditorium is connected to the shop building to ease construction and erection of stage sets. The shops will have a large, paved outdoor apron. Cafeteria and gymnasium are grouped at the other end of the central plaza; the gym's lobby will be the student social center, easily reached from the cafeteria.

"Next we developed plans and specifications for one 'little school'; bids were received, and it is now under construction at a cost of $362,310, or $10.85 per square foot. It is completely fireproof, with masonry bearing walls every 25 ft and steel joists supporting a lightweight insulated concrete slab. Ceilings are acoustic plaster, floors in classrooms and offices are asphalt tile. In corridors, locker area and student lounge, floors are terrazzo and walls are masonry block with a special face for easy maintenance. Exterior walls are brick, spandrels under windows are colored, unglazed ceramic tile. Windows are aluminum, door frames hollow metal. There are special hot water units under windows for heating. Classrooms will be lighted by 6 concentric ring fixtures each.

"Since the student spends so much time in the corridor we tried to make this an interesting space. The interior courts, terraces, open locker areas, and daylight from the display area for each classroom should create a number of interesting vistas for the student who is walking between classrooms."

SCHOOL AND COMMUNITY: MISSOURI SUBURB



TYPICAL CLASSROOM (*CHALK & TACKBOARD ON WALL NOT SHOWN*)

Often an architect working on schools must do much more than design buildings, prepare working drawings and specifications and supervise construction. Sometimes the community's — and the committee's — conception of its needs, architectural and even educational, is hazy, and for various reasons the architect has to help the community form its judgments and decide how to vote on bond issues. These are responsibilities beyond normal architectural services; their cost, which at times becomes very great, is not reimbursed by normal fees. The article that follows is the behind-the-scenes history of one such job, told in the words of J. Stanley Sharp, partner in the firm of architects who designed the high school

FOR A UNIFIED DISTRICT THAT NEEDED GUIDANCE

JOHN JAY JUNIOR-SENIOR HIGH SCHOOL, Katonah-Lewisboro District, N. Y. Ketchum, Giná & Sharp, Architects. Walter D. Cocking, Educational Consultant. Severud-Elstad-Krueger, Structural Engineers. Tectonic Associates, Mechanical Engineers. Joseph R. Gangemi Associates, Site Engineers. Bolt, Beranek & Newman, Acoustical Engineers.

UNION FREE SCHOOL District No. 1, less formally called the Katonah-Lewisboro, N. Y., District, takes in the towns of Bedford, Lewisboro, North Salem and Pound Ridge. It was created in 1953, and shortly afterward a Citizen's Advisory Committee began interviewing architects and making recommendations for their selection. I believe Board of Education members sat in at most of these sessions. We were selected; and a series of meetings was held to discuss the program and review the general background of the community.

The Board's general conception of the way to provide for their needs was to convert a K-12 school in the Katonah area into a junior-senior high school and find a site for a new elementary school which was required by the existing elementary school load in the same part of the District. Our first field job, then, was to inspect eight potential sites being considered by the Board and the Committee. Katonah is in the westerly part of the elongated District; the most acceptable elementary school site, though a little farther south than was desired, was finally agreed on.

With this first step in programming taken, it was decided to present the site question and the budget to the public at one election. We had to develop building programs for both

the secondary and the elementary school. It quickly became evident to us and to our educational consultant, Dr. Walter Cocking, that the District needed real help in its educational programming. We were dealing with very intelligent people, but educationally and architecturally they were of course laymen. We could not expect really definitive educational specifications from them, nor could they be expected to be aware of recent developments in either field. Perhaps, we decided, a presentation of educational objectives and planning would help them. Dr. Cocking and our staff jointly prepared a series of large-scale charts outlining types of educational programs; Dr. Cocking presented and discussed these at length. The Board and Committee, on the basis of this new — to them — approach, could indicate to us where they believed they were educationally and what type of program they wanted to aim for. Although on some points it seemed to us that they were optimistic, we got what we needed to have: a base for our architectural programming. Although we didn't really realize it then, we were also laying groundwork for a serious cooperative effort by the community and ourselves which has been, we feel, mutually enjoyable as well as architecturally profitable — although financially it has hardly been a howling success for us as architects.

Enrollments were the next question. Projected figures were compiled from various sources — utility companies among others — to help define a logical pattern of community growth. Children born and living there were a known quantity, but forecasting growth from other sources caused consternation. How would adjacent White Plains grow commercially; how would this affect the District as a residential suburb? How many summer homes would become all-year residences? What would parkway extensions do to the community? And so on; the guesses were many and divergent.

We settled on figures that seemed reasonable, but another problem developed. The program was pretty well established

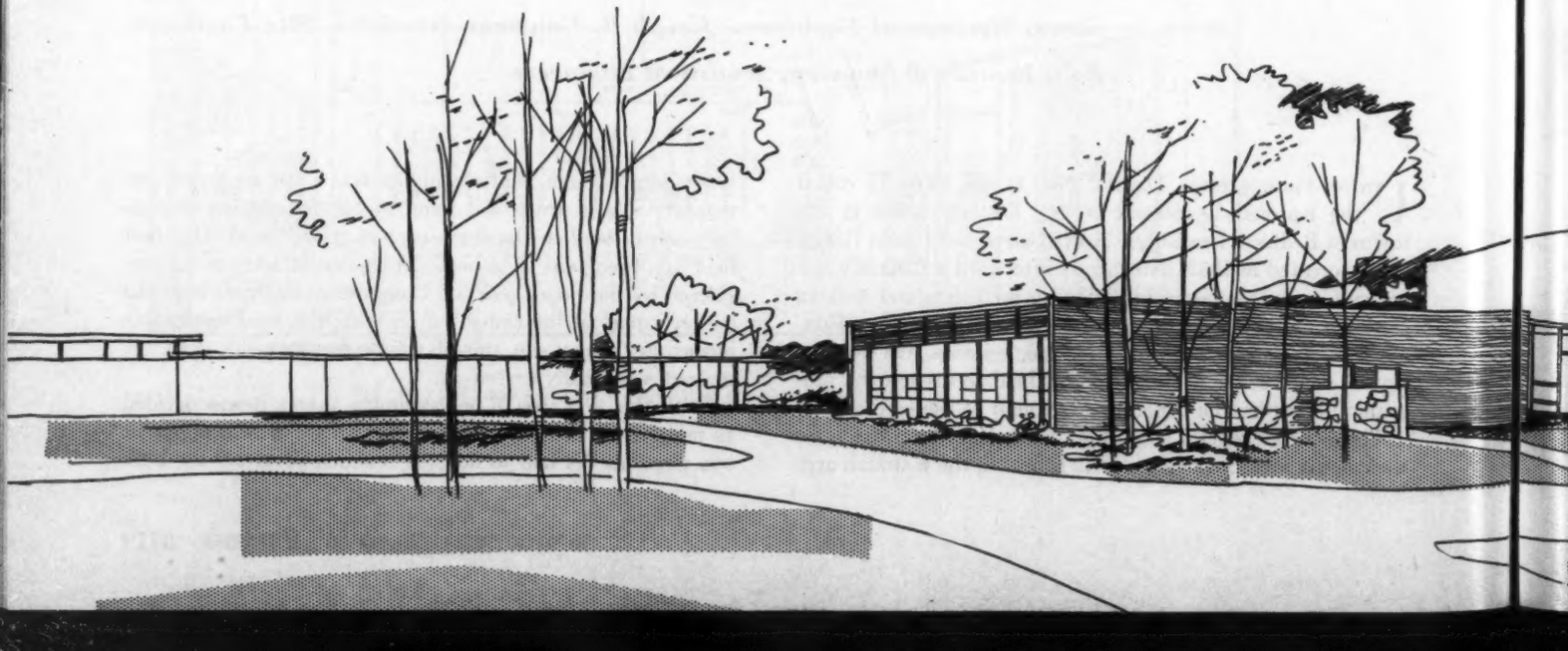
SCHOOL SITE SCORE FORM

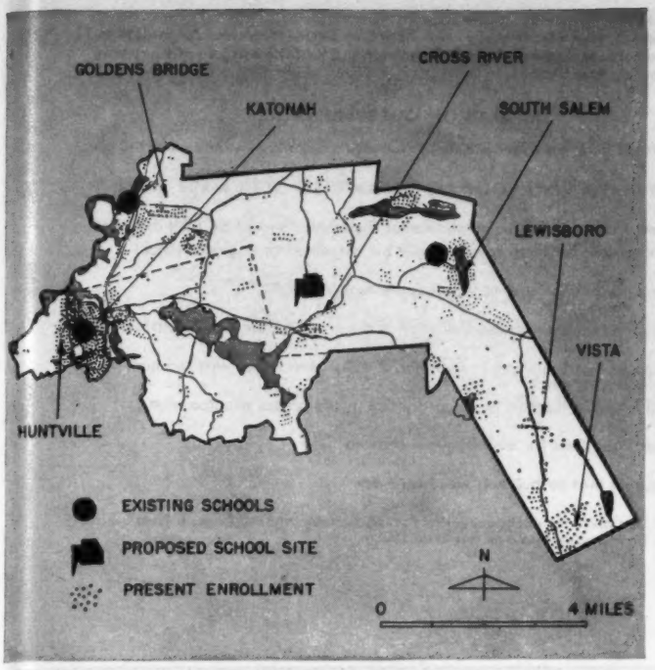
School: Date:

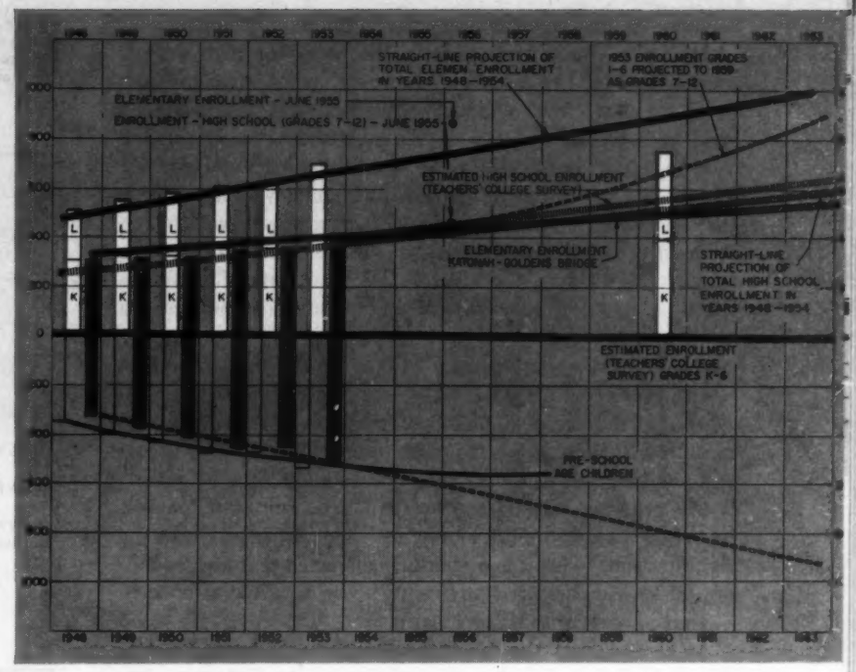
		Standard	Site	Site	Site	
A.	PHYSICAL CHARACTERISTICS - 40 points		.2	.2	.2	4
1.	Amount of usable land	... 15	14	.8	.0	12
2.	Adeptability of shape, contour and orientation to needs	... 10	10	7	8	6
3.	Elevation and drainage	... 10	10	10	10	7
4.	Character of soil	... 5	.4	.4	.4	3
B.	ENVIRONMENT - 25 points					
1.	Cleanliness and quiet of surroundings	... 12	11	11	.6	11
2.	Freedom from nearby hazards (railroads, flying fields, busy highways, etc.)	... 8	.7	.6	.3	7
3.	Attractiveness	... 5	.5	.5	.4	4
C.	ACCESSIBILITY - 20 points					
1.	Safety and convenience of approach	... 10	10	.7	.5	9
2.	Centrality in contributing area	... 6	.4	.4	.4	6
3.	Convenience for community use	... 4	.4	.4	.2	4
D.	SERVICES - 15 points					
1.	Electricity	... 8	.8	.8	.8	7
2.	Drinking water	... 4	.4	.4	.4	3
3.	Water pressure	... 1	.0	.0	.0	0
4.	Sewage facilities	... 1	.0	.0	.0	0
5.	Fire company service	... 1	.0	.0	.0	0
E.	TOTAL		100	98	79	59	79

Site #1 - Benedict
Site #2 - Bee Tree Manor
Site #3 - Kahn
Site #4 - Oneil

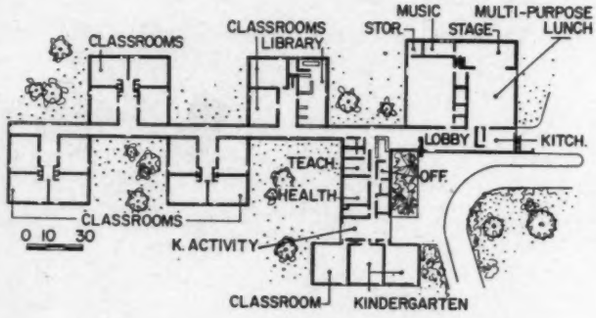
The school district had been reorganized, consolidating several uneconomical smaller districts (Bedford, Lewisboro, North Salem, Pound Ridge) into the Union Free School District No. 1, in which the largest existing school plants were in Katonah. Prior to selecting the architects the district, through its Board of Education and a Citizen's Advisory Committee, had about decided to convert the Katonah School, which was serving all grades from kindergarten through high school, into a Junior-Senior High School and find a site for a new elementary school. The architects inspected eight sites under consideration; above is an evaluation of four as it was presented to the district. A school population survey (top left, facing page) put into graphic form by the architects showed that the Katonah area of the district contained the greatest concentration of elementary school — not secondary — children. It began to appear that the program could be improved

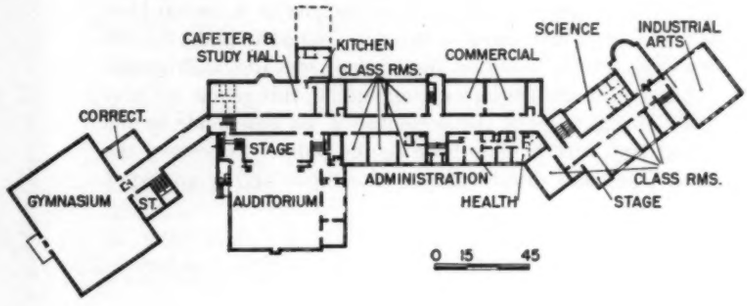




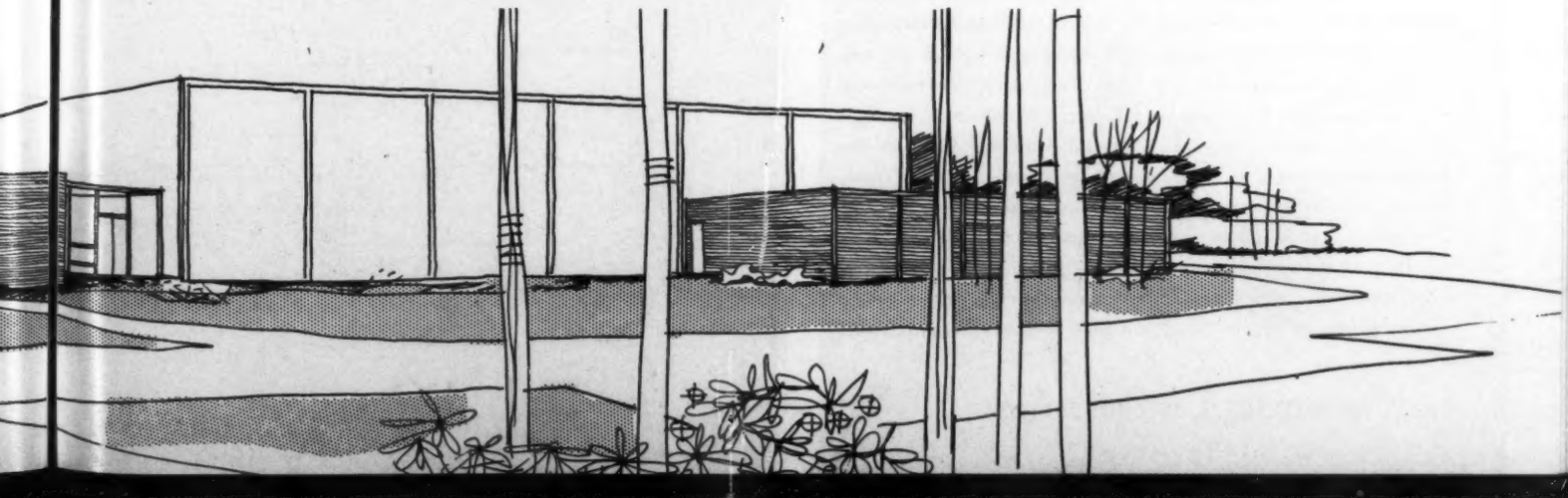

STRAIGHT-LINE PROJECTION OF TOTAL ELEMEN. ENROLLMENT IN YEARS 1948–1954
1953 ENROLLMENT GRADES 1–6 PROJECTED TO 1959 AS GRADES 7–12
ELEMENTARY ENROLLMENT – JUNE 1955
ENROLLMENT – HIGH SCHOOL (GRADES 7–12) – JUNE 1955
ESTIMATED HIGH SCHOOL ENROLLMENT (TEACHERS' COLLEGE SURVEY)
ELEMENTARY ENROLLMENT KATONAH–GOLDENS BRIDGE
STRAIGHT-LINE PROJECTION OF TOTAL HIGH SCHOOL ENROLLMENT IN YEARS 1948–1954
ESTIMATED ENROLLMENT (TEACHERS' COLLEGE SURVEY) GRADES K–6
PRE-SCHOOL AGE CHILDREN

Map above shows school population of the new district. Initial decision to convert the Katonah School into a high school was voted down; a new high school site in the geographic center and more nearly centered in regard to secondary school population was approved; so was a proposition to convert the Katonah plant into an elementary school. The architects furnished the information on which the district acted. At right, population study; note difference between estimates and present enrollment





Before the first proposal was abandoned the architects prepared reasonably complete preliminaries for converting Katonah plant to a 6-year high school (plan of one floor, right above) and building a new elementary school (left above). These were discarded. The architects were paid in standard fashion for the abandoned work, though payment in such cases barely covers costs and makes no provision for anticipated profit. Below, perspective of new high school now under construction



by now. We had an elementary site in mind and what seemed to be a good building to convert into a 6-year high school. As we studied the situation, however, some shortcomings became evident and other possible solutions seemed more logical. Pupil distribution over the District would require excessive bus transportation to a high school not centrally located, for one thing. We began to favor development of a high school near the geographic center, and presented some ideas on this; but it would cost $263,000 more to do this than to stick to the initial proposal. The Board and Committee were understandably unenthusiastic about changing course at this time. We went ahead preparing a brochure and presentation for the imminent election. We developed several alternate schemes for the elementary school and the high school (see illustrations) and appeared at four public meetings in different areas, in an effort to reach all the groups in the still unfused District. Citizen opposition became apparent; it can properly be summed up as: "Who said we wouldn't be willing to spend more money for the right program in the right location? 650 students in this converted building, spending all that money and having no room to grow after 1960 — that's shortsighted!"

At the election the whole proposition was turned down. The School Board sent out questionnaires to find out why; results are tabulated in the illustrations. We began, again, to hunt sites, this time in the geographic center. A tract of well over a hundred acres was found to be available for $25,000. The Board had to do a lot of convincing to win over a majority of the people to buying such a large site as an investment for the future — only about 30 acres would be needed for the contemplated high school — and this time the District approved purchase of the site at a special election. We were instructed to develop schematic plans for the new high school, based on the original educational program.

Among the illustrations accompanying this article are several showing parts of the presentation we now made to the Board and later in slide form to the public, to portray the advantages and disadvantages of campus and non-campus

After the district had turned down the original proposal (remodeled high school, new elementary) the Board of Education made a mail survey to ascertain reasons for adverse voting. The following summary was prepared by the Board:

RESULTS OF QUESTIONNAIRE

Mailed 10–22–53 by the Board of Education; includes returns received through 11–2–53

57% OF THOSE WHO VOTED NO ON OCTOBER 10TH MADE RETURNS

80% thought that a new junior and senior high school should be built and that the present Katonah school should be converted to a grade school

44% thought that the cost of the new site was too high

36% thought that the proposed location of the grade school was unsatisfactory

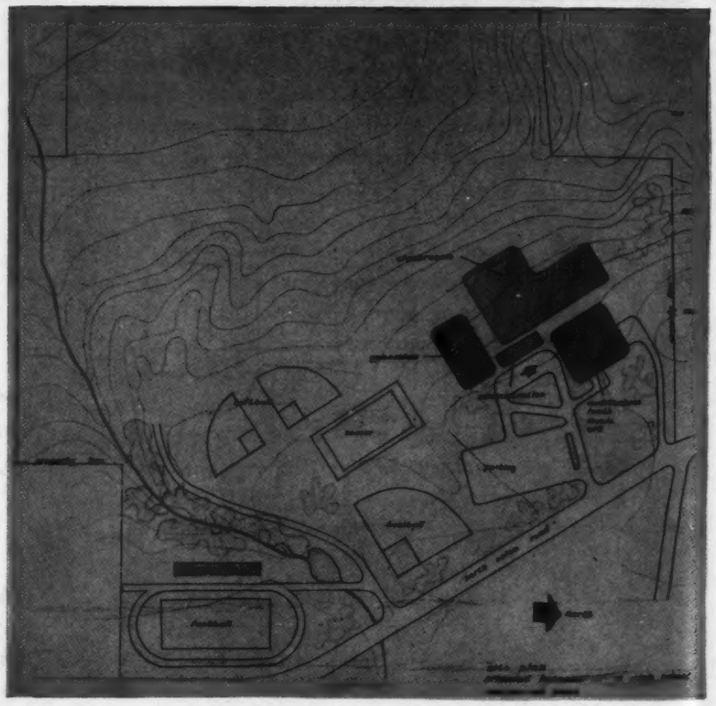
29% thought that the cost of converting the Katonah school was too high

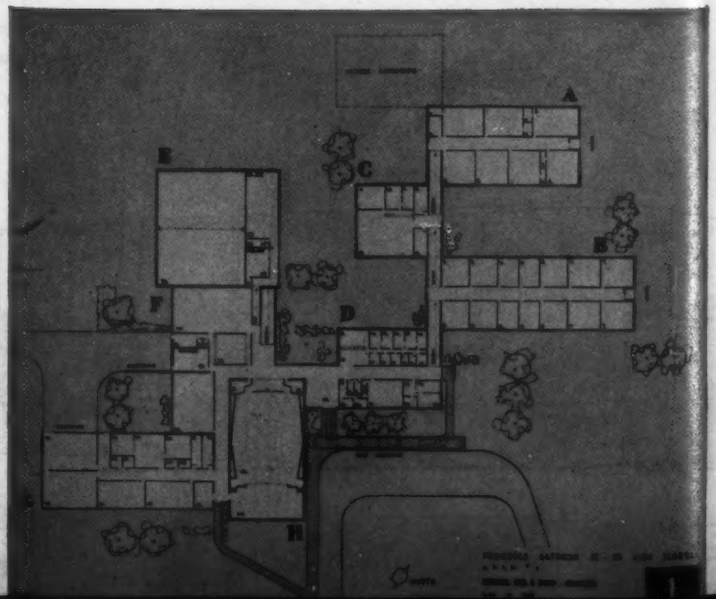
26% thought that the cost of the proposed grade school was too high

14% were opposed for miscellaneous reasons

4% thought that no building was necessary

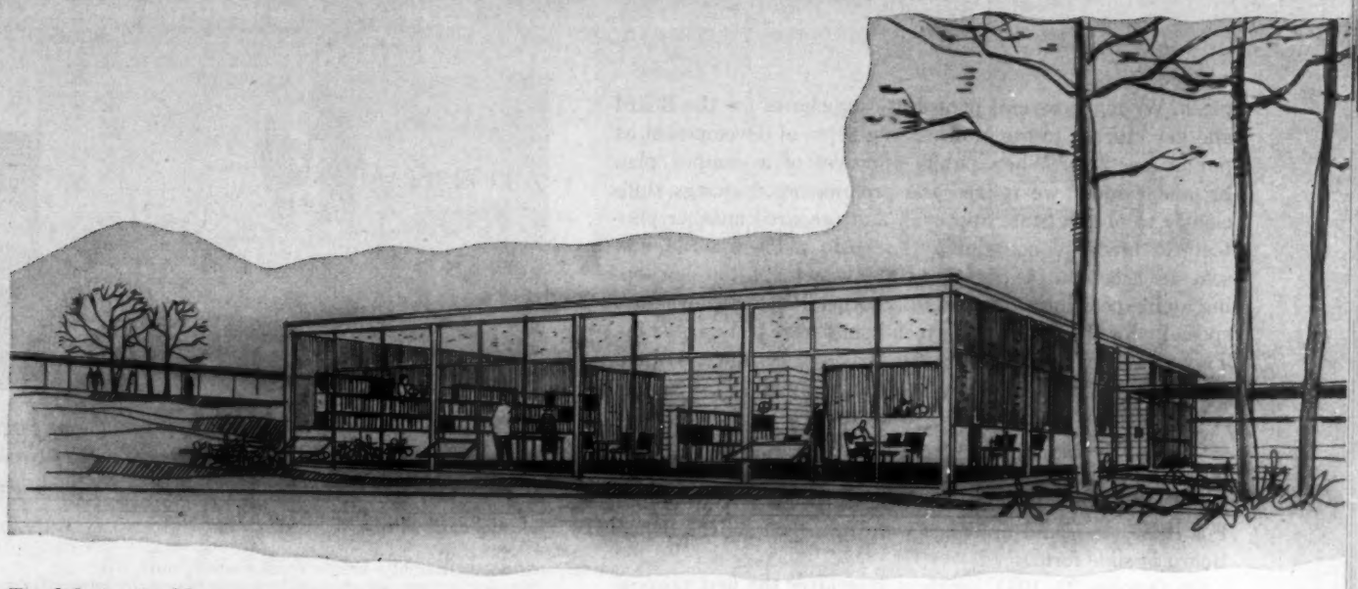
NOTE: The majority of the replies had more than one reason checked. Because of this the percentages above do not total 100%





SCHOOL AND COMMUNITY: NEW YORK SUBURB

After the adverse vote and return of the questionnaires indicating reasons for it, the architects again helped the Board investigate potential sites; they assisted in explaining to the public the advantages of the central site (see preceding page); the vote this time was favorable. In preparing for the vote the architects studied the new site, developed extensive presentations and discussed the proposition at length before numerous public meetings. At right, top row, site development study and evaluations in terms of cost and area utilization for three types of school plant for the new site; bottom row, schematic preliminaries as presented to the public. Each was thoroughly studied and fairly presented although the architects favored scheme No. 3, the one which was finally adopted

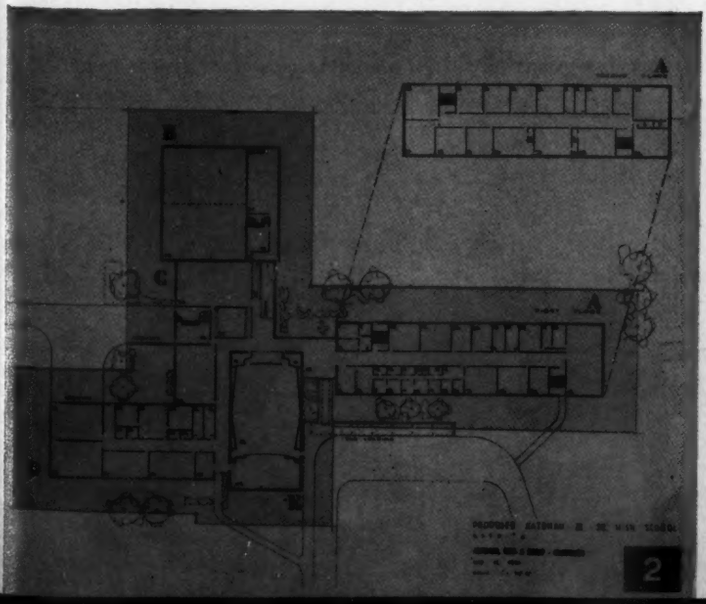


Final design for library

AREAS	SCHEME #1 1 STORY NON CAMPUS	SCHEME #2 2 STORY NON CAMPUS		SCHEME #3 CAMPUS	
	TOTAL	TOTAL	CHANGE	TOTAL	CHANGE
TOTAL BUILDING AREA	80,747 ♦	80,971 ♦	+ 224 ♦	70,567 ♦	- 10,180 ♦
EDUCATIONAL AREA	47,090	47,165	+ 75	47,400	+ 310
% OF TOTAL AREA	58%	58%		67%	
ENCLOSED CORRIDORS	12,414	12,363	- 51	3,839	- 8,575
COVERED WALKWAYS	1,200	1,363	+ 163	7,760	+ 6560

EDUCATIONAL AREA
(1) INCLUDES ALL CLASSROOMS, LECTURE ROOMS, LANGUAGE LABS, LIBRARY, AUDIENCE ROOMS (UNASSIGNED) & LOUNGE, ROOMS
(2) DOES NOT INCLUDE INTERIOR, ADMINISTRATION, TOILETS, CORRIDORS, CLOSET SPACE JANITOR'S CLOSETS, WALLS & PARTITIONS

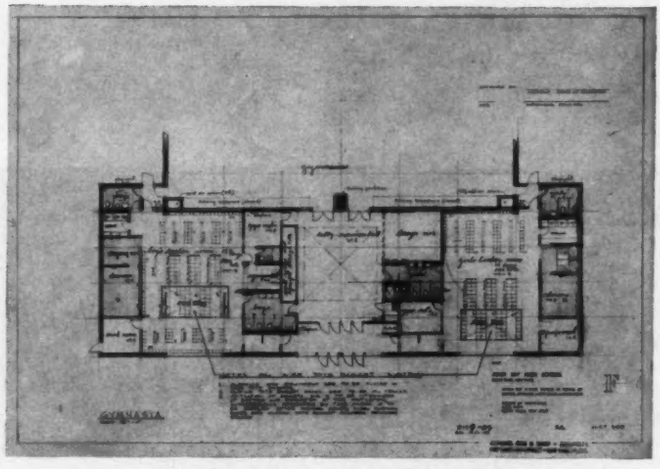
COSTS	SCHEME #1 1 STORY NON CAMPUS	SCHEME #2 2 STORY NON CAMPUS		SCHEME #3 CAMPUS	
	TOTAL	TOTAL	CHANGE	TOTAL	CHANGE
BUILDING COSTS GENERAL CONSTRUCTION INCL. COVERED WALKS HEATING & VENTILATING PLUMBING & SEWAGE ELECTRIC	$1,372,000	$1,391,000	+ 19,000	$1,200,000	- 172,000
ADDITIONAL COSTS FURNITURE & EQUIPMENT CLERK OF THE WORKS LEGAL SERVICES GENERAL ADMINISTRATION & INCIDENTAL COSTS INSURANCE DURING CONST. ARCHITECTS & ENGINEERS COMMISSIONS SITE DEVELOPMENT INCL. ROAD & WALKS	535,000	543,000	+ 8,000	488,000	- 47,000
CONTINGENCY 10 % OF BUILDING COSTS	137,200	139,100	+ 1,900	120,000	- 17,200
TOTAL PROJECT COSTS	$ 2,044,200	$2,073,100	+ $ 28,900	$1,808,000	- $ 236,200



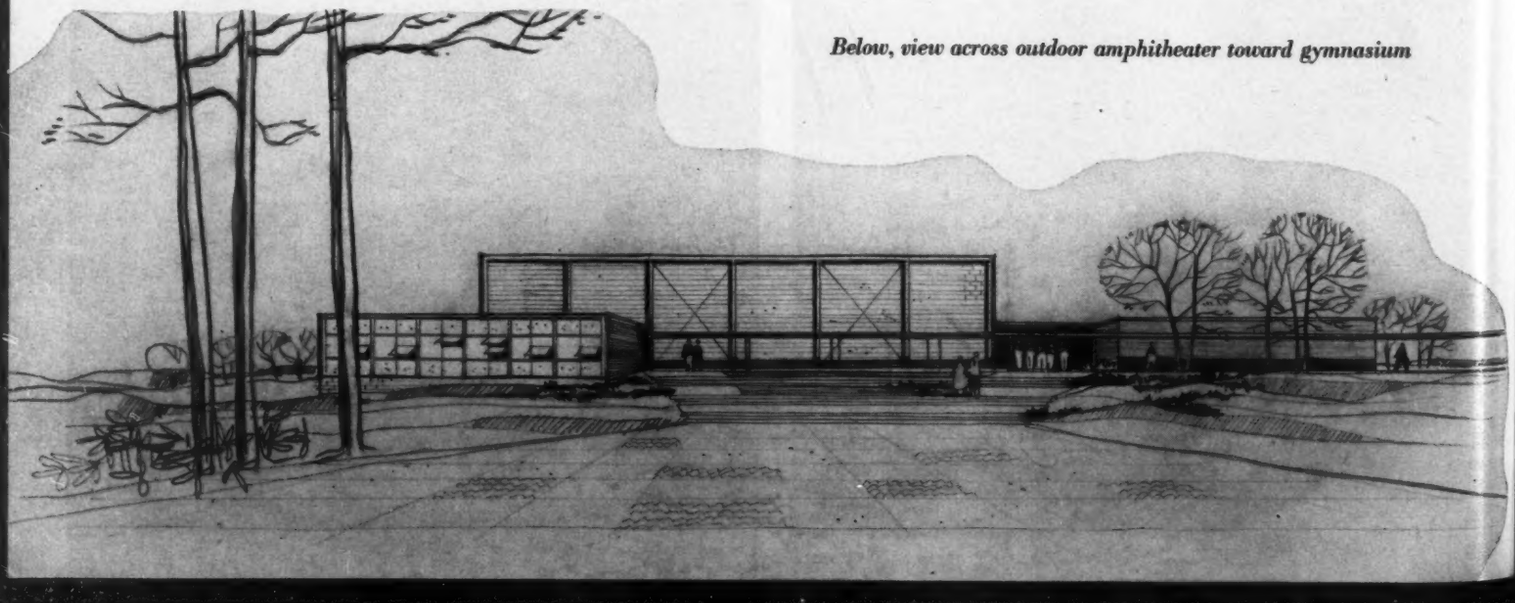
plans. We made several photostatic brochures for the Board and key citizens to use in discussing types of development at public meetings. When public approval of a campus plan became evident we refined the preliminary drawings sufficiently to obtain State approval, and prepared another photostatic brochure containing the basic plans for the new scheme. A committee of citizens was very helpful in developing and expediting work on still another brochure developed specially for the election at which bonds were to be voted on. This was very brief because "if they put it down without reading it all the first time they'll never pick it up again." Attendance at some public meetings had at times been spotty, so we and the Board decided to hold only two large public meetings and to have members of the interested citizen's group set up many small meetings at private homes. For these, data and drawings were furnished by the School Board in slide form.

On October 23, 1954, nearly a year after the first proposition was voted down, the citizens approved the campus scheme by a two-thirds vote. Now our work really began — many hours of conference time, of design study, of planning refinement and detailed study ensued. Some of these — space permits including only a few — are illustrated. There were many more. During this period it was very gratifying to work with a school administrator, Charles T. Helmes, and a cooperative Board whose confidence seemed to gather momentum from meeting to meeting. At one session a Board member questioned omission of a section of covered walkway. At the next meeting, finding we had not included it, there was further discussion. Another Board member eventually said, "I know. You fellows just don't want anything to interfere with that big expanse of wall!" He was right. We had neglected what should have received attention: the difficult job of conveying to the Board the importance of esthetic considera-

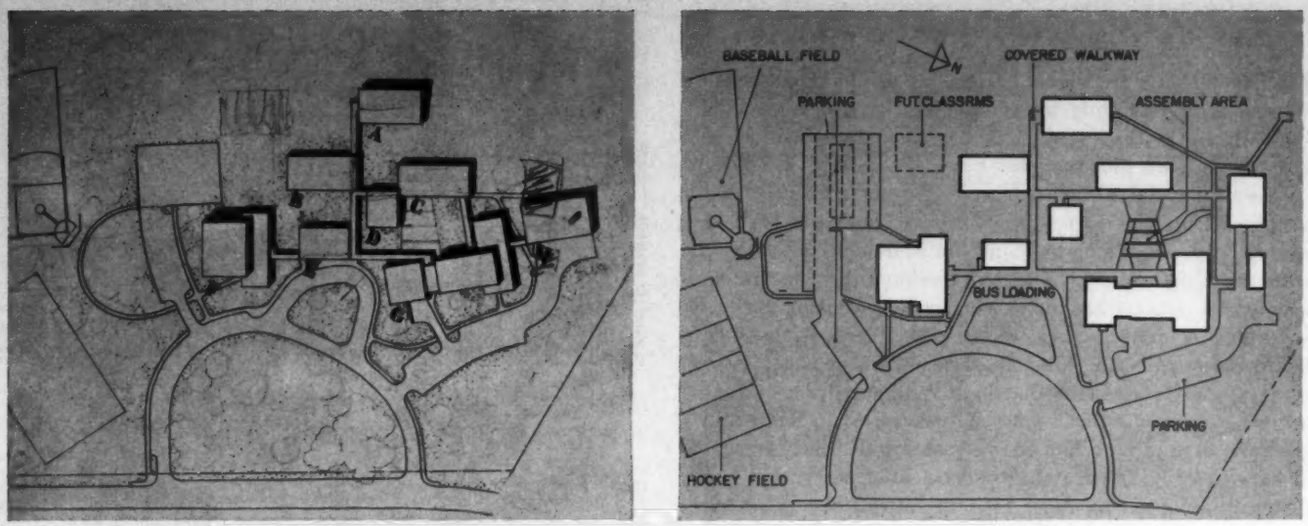
Above, pages from one of several presentations prepared for the Board by the architects; this is leaflet circulated before election was held which authorized acquisition and development of new high school site



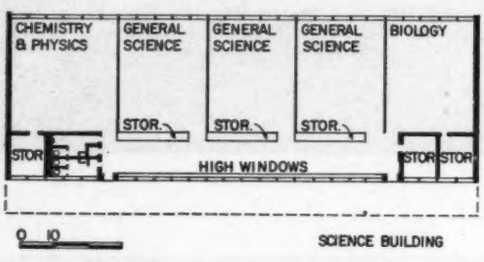
As final design ideas evolved accurate schematic drawings were prepared with spaces for signatures of accepting authorities. Above, typical schematic showing development of gymnasium lobby as an exercise room and, in locker rooms, pull-out, roof-vented tiers of tote baskets designed to increase room utility by making open floor area available

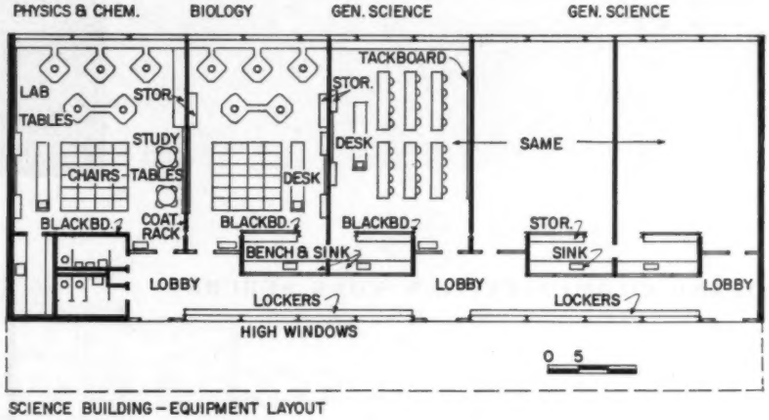


Below, view across outdoor amphitheater toward gymnasium

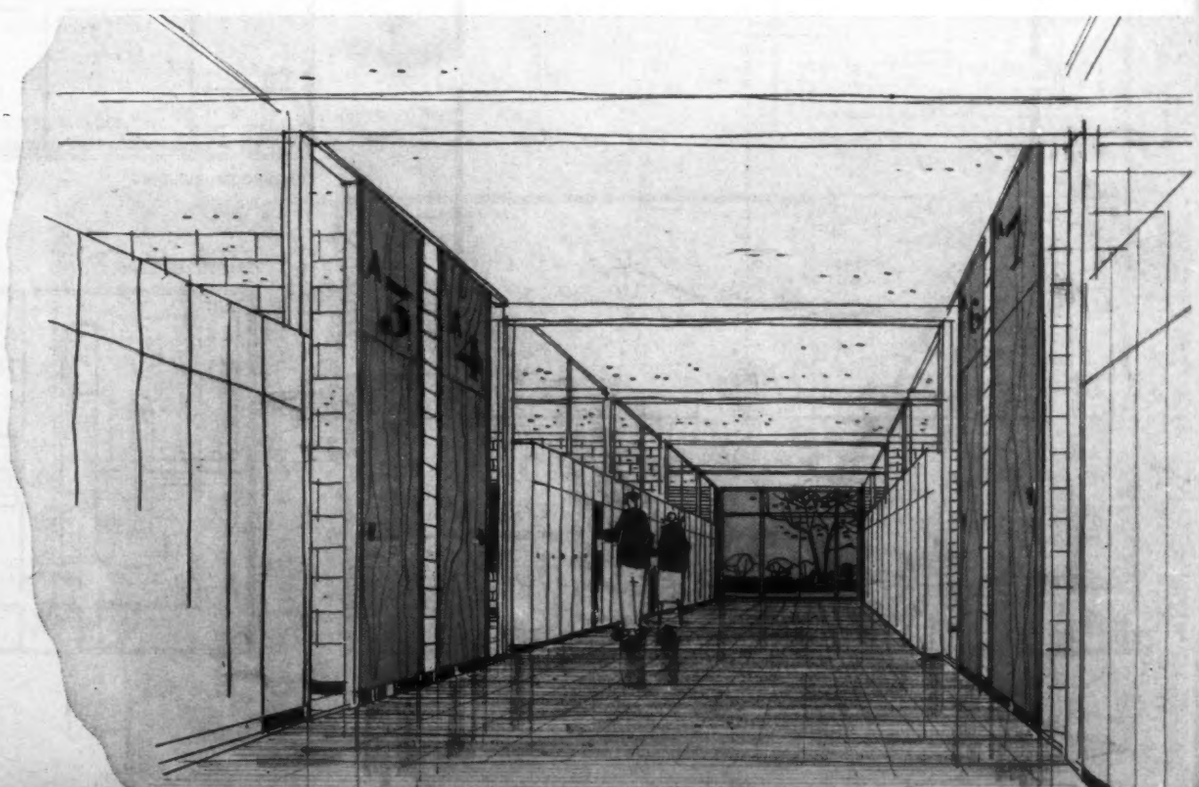


On final project, high school site utilization was further developed in conjunction with the developing educational program. Plan at left, site as presented; right, final plan. At first, boiler room was part of shop building; eventually it was separated, its floor slab placed at footing level to reduce exposed height; art rooms were relocated; home making better related to other areas





Restudy before starting working drawings improved all the buildings. Above, first plan, science building; right, final plan. Note reduction of unneeded lobby space, greatly improved storage facilities



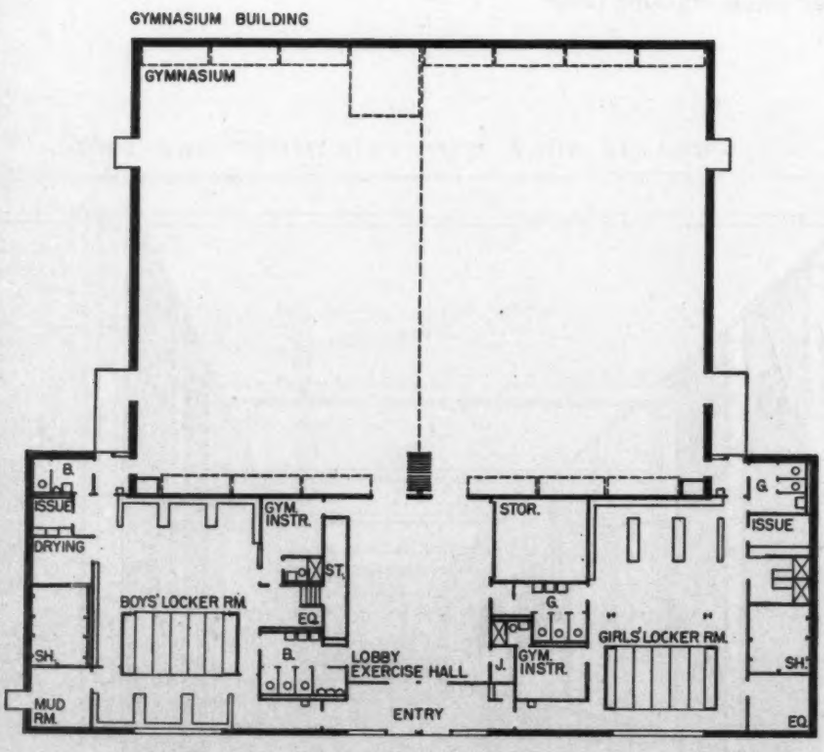
Corridor, classroom building, is characteristic of whole plant: gayly colorful, open in feeling

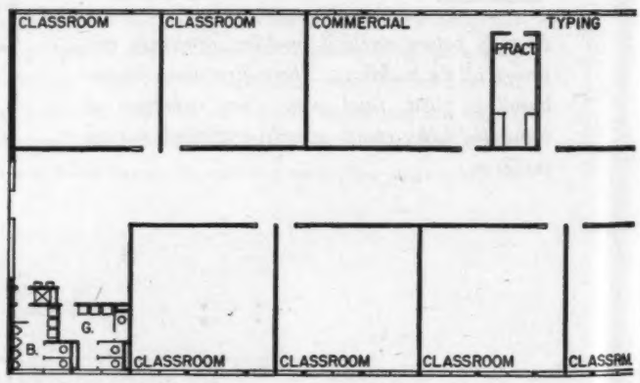
tions. He did it for us, the matter was dropped and the walkway was forgotten. Only weeks later did we realize that, as plans were still further refined, somehow that section of walkway got back into the job!

We went beyond normal engineering services, furnished by our consultants, in employing acoustical engineers to help develop ways to eliminate sound transmission, to improve acoustical qualities, etc. With our mechanical engineers we designed an unusual hot air heating system utilizing peripheral ducts poured in place along with the footings. The electrical system is 227–480 volts rather than the usual lower voltages, the theory being that high voltage reduces current drop where runs are fairly long. We proceeded to refine and develop a type of porcelain enamel panel wall which preceding experience had indicated would be satisfactory, and had the pleasure of seeing bids come in hitting our predicted costs almost "on the nose." We helped the Board select and appoint a clerk of the works, running want ads, screening applicants and interviewing candidates. We are taking out of the general contract, on this job, most of the built-in equipment (cabinet work, etc.) and combining this with the special portable equipment we have designed, in a separate contract. This reduces charges for overhead and profit, gets a better price for the whole because the cabinet work contract is larger, and affords us better control of finished production.

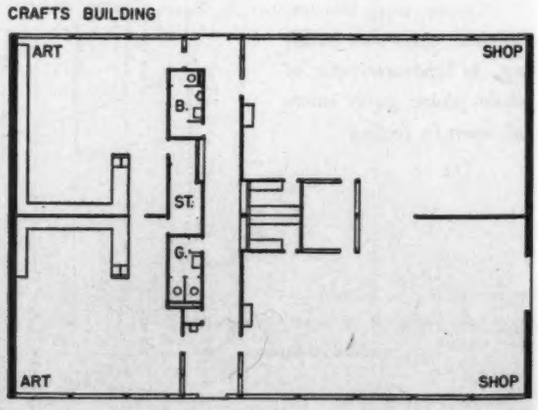
Renderings show adaptation of buildings to site contours and appearance of types of construction discussed on facing page

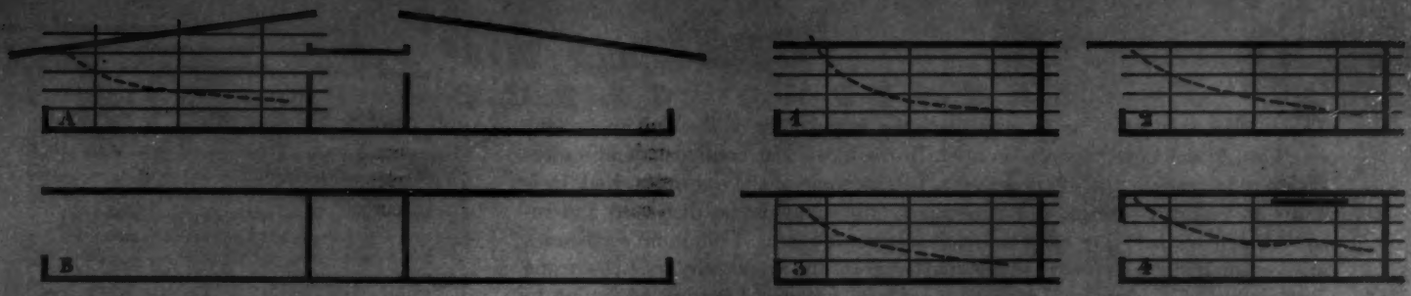
SCHOOL AND COMMUNITY: NEW YORK SUBURB





CLASSROOM BUILDING





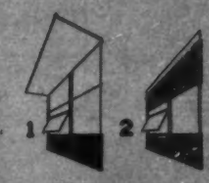
CLASSROOM DESIGN RESEARCH

For economy, classroom buildings have double-loaded corridors; section was thoroughly studied. Drawings above show, A, bilateral natural lighting — which, on the basis of previous experience, was too costly to construct, somewhat difficult to control, and often ignored by a teaching staff who, forgetting operating cost, neglect to turn off artificial lights when they are not needed. The simple cross-section, B, with flat roof, end-on classrooms, and minimum cubage and perimeter wall, was adopted. Diagrams 1 through 4 are variations of scheme B. 1, unprotected glass from sill to ceiling caused brightness ratios too high for comfort, unacceptably low lighting intensity at interior classroom wall. In 2 the overhang improved brightness ratios but not interior light level. Adding a louver at the glass, 3, provided acceptable brightness ratios but reduced interior light intensity, cost too much both initially and in maintenance, and did nothing to reduce heat losses. In 4, the adopted scheme, windows are used principally for vision and ventilation; use of gray glare-reducing glass insures good brightness ratios; heat losses are cut considerably; artificial sources are relied on for daytime lighting as well as night. Cost of current is offset by reduced heating costs. At right, two of numerous studies of wall construction costs

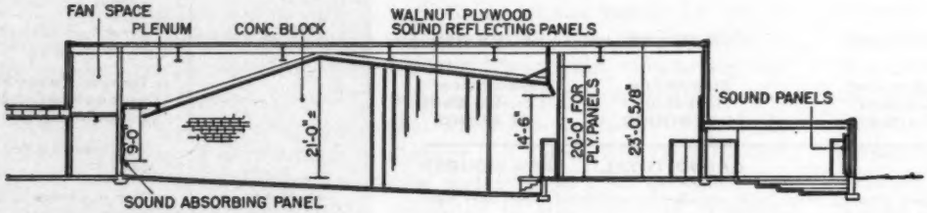
MASONRY CAVITY WALLS

CONSTRUCTION	$2.90	$2.63
GLAZING	.94	.61
HEATING PLANT	.87	.86
BLINDS	.72	.39
TOTAL	$5.43/sq ft	$4.00/sq ft

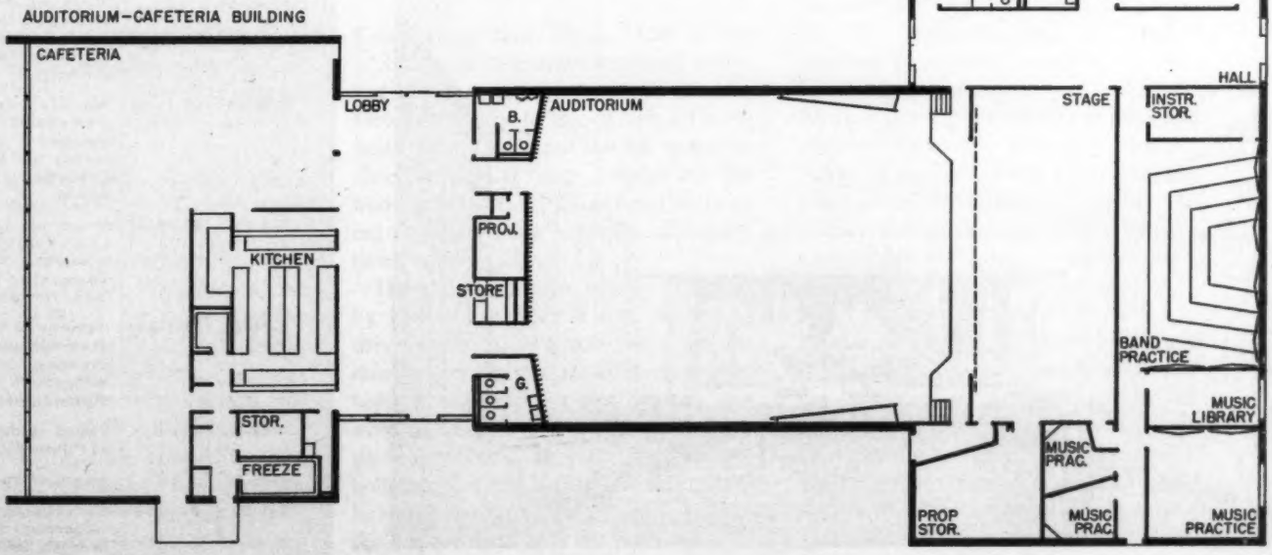
METAL FRAME WALLS



CONSTRUCTION	$3.21	$3.00
GLAZING	.91	.49
HEATING PLANT	.78	.61
BLINDS	.72	.39
TOTAL	$5.62/sq ft	$5.09/sq ft



SECTION THROUGH AUDITORIUM



Throughout this job — as in any job — the importance of the architect-client relationship was never underestimated. In the ideal case, confidence and understanding increase as the job progresses. I think some of the examples cited, incidents at Board Meetings, and particularly the major issues discussed and resolved, demonstrate how essential such understanding is. Community attitudes are continually being voiced as these matters come up. We usually try to have one staff architect, working closely with a partner, follow a job from beginning to end. In this case circumstances forced us to use three men at different times; one of the original three is now in charge. This caused some discussion by the Board; and certain Board members pointed out that they had engaged a firm, not an individual. Moreover, an experienced partner was following the work closely, and we could assign a staff member well suited to each phase of the project.

— J. Stanley Sharp, A.I.A.

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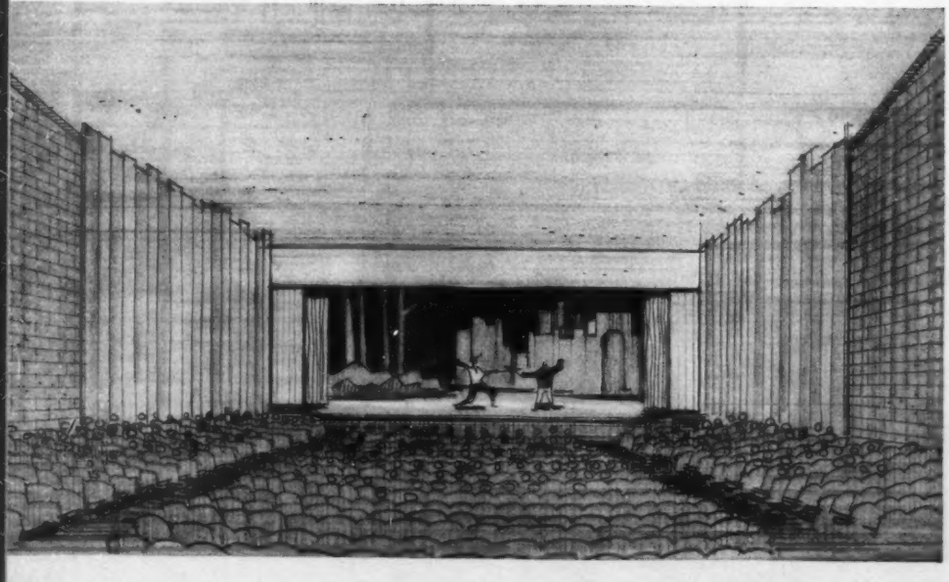
MAN-HOURS SPENT ON PORTIONS OF JOHN JAY HIGH SCHOOL JOB

Not including any time for principals or any provision for overhead, etc.

Public Meetings 18 HOURS	Conf. with Consultants & Board, Programming Studies, Preparing Brochures 254 HOURS	Prelim. Design (Incl. Budgets) 1154½ HOURS	Renderings 45 HOURS
Working Dwgs. (Prelim. & Final Incl. Sketches used to Explain to Board) 3402½ HOURS	Selecting Clerk of the Works 15 HOURS	Specification Writing 130 HOURS	Schematics 8 HOURS
General 26 HOURS	Supervision (Addenda) 6 HOURS	Supervision (Bidding) 44½ HOURS	Supervision* (Construction) 206 HOURS

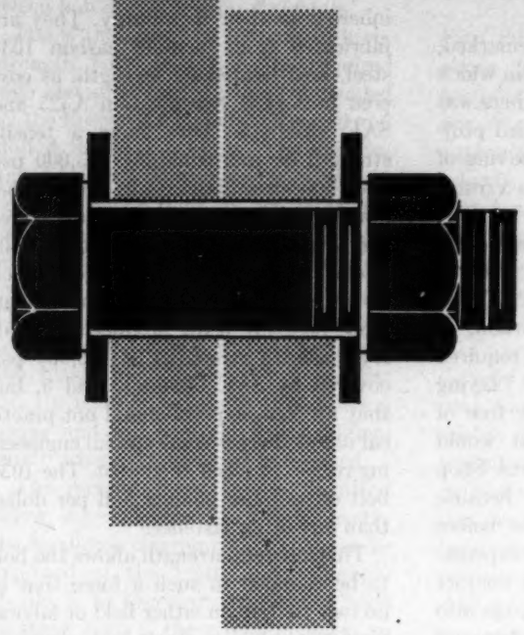
GRAND TOTAL....5309½ HOURS*

* Includes supervision of construction only through May, 1955; considerable additional supervisory time and some drafting on details, etc. will be added before completion



Only recently have the architects been able to set up a realistic time schedule for the various phases of the school plant's progress toward completion. For one thing, they have been too busy trying to make up time lost in shifting, reappraising, restudying. For another, the actual effect of the entirely legitimate changes upon progress has been almost impossible to assess. However, the schedule below shows that the ultimate requirement, occupancy by the beginning of the 1956 fall term, can be met although there is no leeway

DATE COMPLETED OR POSSIBLE	DATE FIRST CONSIDERED DESIRABLE	ITEM OF WORK
	4-13-54	Board of Education approves program
	4-16-54	Architects meet with Board of Education and Citizens Building Advisory Committee
	4-20-54	Board of Education reviews schematics and decides on direction of final preliminary
	4-21-54	Conference with State Education Department at Albany to review program and schematics
	4-22-54	Architects begin preliminary drawings, outline specifications and budget estimates
7-2-54	6-20-54	Conference with State Education Department, Albany, to review preliminaries
9-8-54	6-27-54	Preliminary drawings, outline specifications and budget estimates forwarded to State Education Department for approval
10-1-54	6-3-54	First advertisement for bond vote
		General Public Meetings to discuss pending bond issue
		Registration for voting
10-23-54		District votes for Bond Issue on new High School and conversion of Katonah School K-12 to Elementary K-6
11-25-54		Working drawings and specifications started after Board of Education's authorization
2-28-55	10-11-54	Working drawings and specifications completed and presented to Board of Education for approval
3-7-55	10-12-54	Working drawings and specifications forwarded to State Education Department for approval
3-14-55	11-1-54	Approved working drawings and specifications distributed to contractors for bidding purposes
4-13-55		Sealed bids opened at Public Meetings
4-25-55		Award of Contracts
9-1-55	9- -55	Construction of classroom facilities in High School completed for occupancy. Katonah School conversion partially completed



HIGH-STRENGTH BOLTS

Simple in principle, even simpler in practice, they're replacing rivets in steel construction today. Here are some of the reasons why:

Less labor, time, noise, equipment, inspection, over-all costs, danger

Greater strength

High-strength (or high-tensile) bolts, according to architects and engineers who have used them and some of the top steel fabricators in the country, may be the field fasteners of tomorrow in steel construction. Already they're being specified instead of rivets in many large projects, and chances are that they may replace them completely.

Actually bolting is not a new construction method. It has been used for years in bridges, but the necessity for retightening bolts which have become loose from vibration and shock has proved to be a continual maintenance expense. This failing was the instigating factor in research studies to find a bolt that would stay tight — the high-strength bolt. Once established, this new bolt, and the ease with which it could be installed, elicited such widespread interest throughout the construction industry that high-strength bolt manufacturers found themselves supplying building contractors as well as bridge builders.

Rivets, paradoxically, played a major part in helping to establish high-strength bolts as strong fasteners. It was through a study of rivets as structural fasteners that Professor Wilbur M. Wilson of the University of Illinois concluded that the high-strength bolt, with its high clamping force, would be superior to the rivet in dynamically loaded structures. Later investigations at Northwestern University and elsewhere pointed up the practicability of using high-strength bolts in bridges, heavy equipment and tier buildings. Then, in 1947, the research which had been carried on at several universities, through funds provided largely by fastener manufacturers, was centralized in the Research Council for Riveted and Bolted Structural Joints.

Since that time the demand for high-strength bolts has been sharpened to such an extent that over 400,000 tons of structural steel have been fastened with them. All the reasons for this increase, as listed above, are important — but the labor-saving, time-saving and noise-reducing factors are the major ones that will decide the future of the high-strength bolt. These factors were stressed over and over again in questionnaires circulated to architects and engineers who have specified high-strength bolts in recent building projects (see comments on pages 192 and 193).

Less labor, less time. Most of the architects and engineers surveyed underlined these reasons as the major deciding factors in their selection of high-strength bolts. No matter what the job or where, their comments were consistent: the number of men and the amount of training required bring the cost of bolting down considerably.

High-strength bolts can be installed by half the number of men needed to drive rivets. A two-man team can assemble and tighten approximately 400 bolts in one working day, whereas the average four-man riveting crew can place only about 300 rivets. If necessary, bolts can be installed by only one man if he runs the nut up tight before he applies the impact wrench to the bolthead.

Oftentimes the fact that less labor is needed to install bolts is not as important in itself as is the fact that there just isn't enough skilled labor available to supply an adequate number of riveting crews. The completion of a field-riveted structure is very often delayed because of the erector's inability to hire enough field riveters to man the job properly. More and more the skilled labor supply is proving to be a stumbling block to steel erectors, and so more and more they are turning to bolting as an escape from costly time delays. An unskilled laborer can learn how to handle an impact wrench and become expert at bolting in far less time than it takes an apprentice to learn the highly skilled technique of passing, catching, handling and inserting red-hot rivets. Once he has the "feel" of the wrench, he spends less time tightening each bolt than a riveting crew needs to drive a rivet. Furthermore, workmen prefer bolting, because the impact wrench is light and clean as well as easy and safe to operate.

The time-saving feature also produces some monetary advantage to the contractor and to the owner, who can occupy a bolted building sooner than a riveted one.

Less noise. The importance of noise is in direct proportion to the proximity of the construction to existing occupied buildings. Anyone who has had to work in or near the insistently nerve-wracking chatter of a riveting gun will readily agree. As indicated in responses to the questionnaires, the noise factor is im-

portant in office buildings, schools and especially hospitals. However, designers of industrial buildings do not usually consider noise because most plants are in out-of-the-way locations.

Less equipment. The only equipment that a bolting team needs at the point of application in addition to an impact wrench is a holding wrench. This contrasts with the riveting equipment necessary: rivet heating forge, tongs, a cone or can to catch the hot rivets, an airjack or dolly bar and a pneumatic hammer or gun. The economics of bolting are even more pronounced in small or remote structures where the necessary riveting equipment is not readily available.

Further, it is obviously more economical to use high-strength bolts as erection or fitting-up bolts and to leave them in place during the field erection of new structures than to incur the expense of their removal and replacement with rivets.

Less inspection. Since bolts are tightened to almost uniform tensions by a pneumatic impact wrench and rarely need additional take-up, only a minimum number of bolts has to be inspected. The exact number is determined in advance by the engineer in charge. Bolts tightened with calibrated impact wrenches have been found to provide consistently accurate amounts of prestress. For this reason the concern of inspectors has been more with the calibration of the wrenches than with spot-checking the finished work with a torque wrench.

Riveting requires 100 per cent inspection, since it is normal to find 3 to 5 per cent of the rivets loose and in need of replacement.

Less over-all costs. Cost savings using high-strength bolts are not of any great magnitude at the present, and usually depend on job conditions. Nonetheless, the cost picture is optimistic because, whereas none of the firms queried stated that bolting costs were more than riveting costs, some did say that a very small cost reduction was realized. The original cost of the bolts, which is five times that of rivets, is offset by the savings in labor, time and equipment. Whether or not this higher cost will be *more* than offset will depend on many factors, the two most important of which will be (1) gradually lower prices of high-strength bolts and (2) the increasing familiarity of construction crews with bolting methods.

As one engineer queried remarked, "On this and one other project in which high-strength bolts were used, there was no saving in cost, but on a third project using 2100 tons of steel a saving of about $4 per ton was realized as a result of the high-strength bolts."

The cost differential has become more favorable since the Research Council modified its specification about painted surfaces. The original specification, in the interest of preventing slip, required that contact surfaces (called "faying surfaces") of bolted joints be free of paint and other material that would lessen friction between the parts. Shop fabricators frowned on this, because the job of masking joint areas before spray-painting was an added expense. Now the specification permits contact surfaces of joints in which slippage into bearing is acceptable to carry a shop coat of protective paint or lacquer.

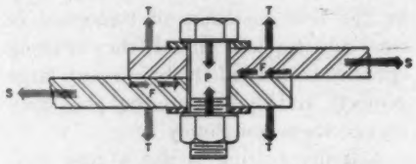
Maintenance economies will account for some savings in the over-all cost picture. For example, additions and alterations are simplified in bolted structures. The bolts are easily removed and just as easily replaced using no equipment but a wrench, and after removal they are re-usable. There is no need to cut, chip, burn or use any other destructive method. In dynamically loaded structures, such as plants with traveling cranes, bolts will never loosen once they have been tightened to their full clamping force, whereas rivets sometimes become loose or torn out when subjected to continuous vibration.

Less danger. The danger of fire is eliminated in high-strength bolting because the forge and hot rivets used in riveting are not necessary. Also the smaller amount of equipment makes the actual operation on the structural frame less hazardous.

Greater strength. The tremendous strength of joint which can be attained with high-strength bolts is a major consideration in dynamically loaded structures such as bridges. However, for most buildings, in which the load for all practical purposes can be considered static, it is a minor point. A rivet will do the job just as well. Exceptions, as mentioned before, are plants in which cranes and heavy operating machinery cause vibration which might loosen rivets but couldn't budge high-strength bolts.

The strength of high-tensile bolts is inherent in their metallurgy. They are fabricated from medium carbon 1038 steel, heat-treated for strength, as covered in ASTM Specification A325 and SAE Grade 5. They have a tensile strength of approximately 125,000 psi, with bolt sizes above $\frac{5}{8}$ in. slightly below this value. This is almost three times the strength of a common bolt, made of low-carbon 1018 steel, which does not respond to heat-treatment. Some bolts are being produced from alloy steels to strengths of 150,000 psi, covered by SAE Grades 7 and 8, but they are very expensive and not practical unless there is some special engineering reason to offset their cost. The 1038 bolt offers more pounds pull per dollar than any other fastener.

This inherent strength allows the bolt to be clamped to such a force that in no case to date, in either field or laboratory tests, has a single nut shown a tendency to back off. The principle is elementary, as shown in the diagram below.



Two metal plates of approximately the same modulus of elasticity are joined together with a high-strength bolt which is tightened to a clamping force indicated by the arrows marked *P*. This force clamps the two plates together so tightly that *all* loads on the members are carried by the friction *F* developed on the contact surfaces — which is directly proportional to *P*. With enough clamping force *P*, the shear forces *S* can't exceed *F*, and so the surfaces can't slip against each other and the bolt can't bear against the inner surface of the bolthole. Likewise, it's unlikely that tensile forces *T* will exceed *P*, and so the plates can't separate.

Therefore, for all practical purposes the connection is a rigid one, with the steel plates being incompressible. Hardened steel washers are placed under both the head and the nut to permit the development of the high torque that is required without scoring the connected material.

The size of the bolthole is relatively unimportant, since the magnitude of *P* makes slip at working loads impos-

sible. Normal clearances of 1/16 in. between bolt and hole are satisfactory.

Loads that must be induced in high-strength bolts to attain the required high clamping forces are recommended by the Research Council for Riveted and Bolted Structural Joints. The load induced in each bolt should be about 15 per cent more than its recommended minimum preload value, which is 90 per cent of the minimum elastic proof load required by ASTM Specification A325. The elastic proof load is a load that can be applied to the bolt without incurring any plastic deformation or permanent set. Up to this load the bolt acts like a spring and will contract to its original length whenever the load is released.

The recommended values, as listed below, were calculated to develop nearly the maximum clamping force that can be expected of the bolts. Why, though, should it be necessary to tighten bolts to these loads if the strength makes so little difference in statically loaded structures? It's wiser to do so because at these loads there can be absolutely no possibility of the nut loosening, even though the possibility is a slight one to begin with. Also, there is little extra effort or time required to run the bolts up to these loads. They can even be strained beyond these limits without any harmful effects, although this serves no useful purpose other than to eliminate all question of the bolt being sufficiently tight. They are still capable of providing a clamping force limited only by the elastic properties of the bolt. Since the minimum specified breaking strength is not reached until a tension in excess of 150 per cent of the values given in the table has been applied, too meticulous attention to an upper limit of pre-stress is uncalled for and only serves to increase erection costs.

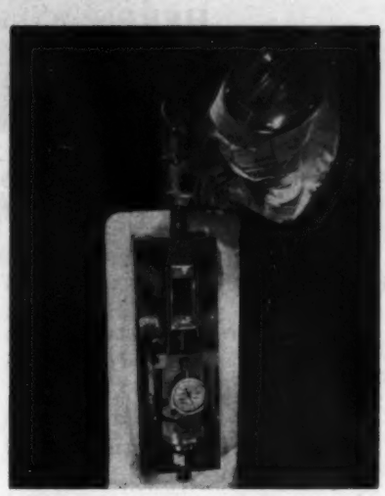
In designing high-strength-bolted joints, the present practice is one of substitution: one bolt for one rivet, even though the ratio of their respective shear strengths is greater than 1.5 to 1. This one-for-one system is required by most building codes. Perhaps this requirement will be revised eventually, just as building officials in cities throughout the country have revised their building codes, after consideration of the findings of the Research Council, to include high-strength bolts. Manhattan's building code still limits bolted structures to a height of 125 ft. However, city officials are studying the results of continuing tests to consider revision of the existing codes.

HERE'S HOW HIGH-STRENGTH BOLTS ARE APPLIED

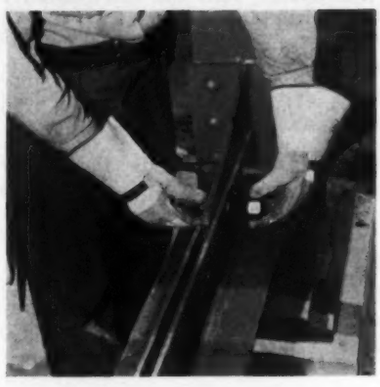
First the impact wrench is calibrated to obtain the proper relationship of air pressure to bolt tension. For each bolt size to be used the air pressure and approximate time of torquing required actually to stall the wrench are determined, using as many trial bolts as necessary. Each wrench should be calibrated at least once a day, thus ensuring that the proper bolt tensions will be induced.

After the bolts, nuts and washers have been hoisted in barrels to the placing crews, the holes are aligned with one or more drift pins and the bolts inserted. A hardened washer is placed under the bolthead to prevent the bolt from cutting into the softer structural steel. A second washer is slipped over the bolt threads and the nut run up tightly by hand. When all the bolts in a connection have been placed, and the drift pins replaced with bolts, the nuts are tightened to the required tensile load. With a two-man crew, one man grasps the bolthead with a hand wrench while the second man operates the impact wrench. When only one man is working the bolts, he first draws the nut up tight and then applies the impact wrench. The usual time of application of the impact wrench varies from 10 to 15 sec at a normal operating air pressure of about 80 to 90 psi. At the point of stall the wrench continues to impact but lacks the power to deliver a substantially larger torque. At this point there is a noticeably heavier vibration in the wrench and no visible turning of the nut, and the tightening socket on the wrench tends to recoil after each blow.

After the joint is completed, and this usually requires retightening of the first bolts, it is marked and ready for inspection. The torque wrench can be used for this check, and the torque reading taken from the wrench dial.



Bethlehem Steel Co.



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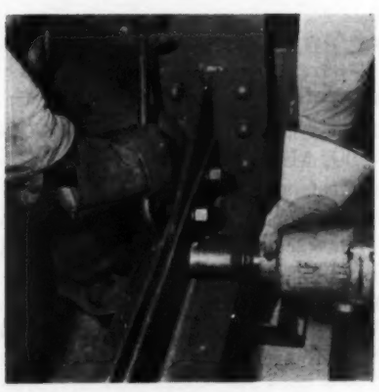


Bethlehem Steel Co.

Russell, Burdsall & Ward Bolt and Nut Co.

Bolt Tensions and Torques

Bolt size (in.)	A (lb)	B (lb)	C (lb ft)
½	12,500	10,850	90
⅝	20,000	17,250	180
¾	29,000	25,600	320
⅞	37,000	32,400	470
1	49,000	42,500	710
1⅛	58,000	50,800	960
1¼	74,000	64,500	1350

Wrenches should be calibrated to recommended values A, *about 15 per cent greater than the actual required bolt tensions* B. C *is the approximate equivalent torque for the required preload value.*

HERE'S WHY HIGH-STRENGTH BOLTS ARE BEING USED

In order to get some insight into the reasons why high-strength bolts are being used, the RECORD *asked several architects and engineers who have specified them in recent building projects:* "What factors influenced your decision to use high-strength bolts? — *Were they any of those listed below?*"

THE QUESTIONS AND ANSWERS

1. Cost? Were erection costs less than they might have been had rivets been used? *Yes* 10 *No* 3
2. Time? Did bolting actually take less time than riveting might have? *Yes* 14 *No* 1
3. Manpower? Was the unavailability of skilled labor a factor? *Yes* 12 *No* 3
4. Do you feel that less skilled labor saved time and/or money? *Yes* 10 *No* 3
5. Noise? Did you consider the quieter operation of the impact wrench? *Yes* 9 *No* 6
6. Safety? *Yes* 12 *No* 2
7. Engineering advantages of the high-strength bolt? Do you feel that they will produce a stronger building? *Yes* 11 *No* 3
8. What, in your opinion, are some of the reasons why high-strength bolts are not specified in more projects?

Answers to Question No. 8 included comments such as "Not well known," "Too many not familiar with design principle and method of installation," "Reluctance to change from established practice," and "Building code restrictions."

It's interesting to note that agreement on time saving is almost unanimous, and the labor factor was almost as important a consideration. Of the six negative responses to the query about noise, five were from designers of plants, which are usually in out-of-the-way locations where noise is not an important factor anyway.

THE BUILDING PROJECTS

Hospitals

Mayo Clinic Diagnostic Building, Rochester, Minn. — Ellerbe and Co., Architects and Engineers, St. Paul

Oregon General Hospital, Portland, Ore. — Lawrence, Tucker & Wallmann, Architects, Portland

Fairview Park Hospital, Cleveland, Ohio — Garfield, Harris, Robinson & Shafer, Architects, Cleveland

Industrial Buildings

Chrysler Corp. Jet Engine Plant, Macomb, Mich. — Albert Kahn, Associated Architects and Engineers, Inc., Detroit

Schlitz Brewery, Van Nuys, Calif. — Harley, Ellington and Day, Inc., Detroit

Caterpillar Plant, York, Pa. — Whitman, Requardt and Associates, Engineers, Baltimore, Md.

Municipal Stadium, Kansas City, Mo. — Victor Mayper, Engineer, New York City

Bowaters Southern Paper Corp., Calhoun, Tenn. — J. E. Sirrine Co., Engineers, Greenville, S. C.

Commercial Buildings

Independent Life & Accident Insurance Company Home Office Building, Jacksonville, Fla. — Kemp, Bunch & Jackson, Architects, Jacksonville

Adolphus Tower Building, Dallas, Tex. — Wyatt C. Hedrick, Architect & Engineer, Dallas

Springfield Fire and Marine Insurance Co., Springfield, Mass. — Cram and Ferguson, Architects-Engineers, Boston, Mass.

Schools

Medical Sciences Building, University of California — Blanchard & Maher, Architects, San Francisco, Calif.

Schools of the Health Professions, University of Pittsburgh — Schmidt, Garden & Erikson, Architects-Engineers, Chicago, Ill.

SS. Peter and Paul School, Green Bay, Wis. — Gordon J. Feldhausen Associates, Architects-Engineers, Green Bay

Women's Dormitory, University of Kansas — John A. Brown, State Architect, Topeka, Kan.

THE COMMENTS

Labor

Lawrence (hospital) — According to the job superintendent, bolts can properly be installed by a two-man crew who have had only a day of instruction. A four-man rivet crew, however, takes years to train. The fact that less skilled labor is required is always a factor in good design of structure. It tends to make competitive bidding closer and permits the contractor to pass on possible savings to the owner.

Kahn (industrial) — This is the principal reason for using high-tensile bolts, i.e. scarcity of competent riveters. Fewer men are required to place and tighten bolts.

Harley (industrial) — It appeared to be impossible to get the number of experienced rivet-crews required for this job.

Whitman (industrial) — Riveting crews were scarce and premiums would have had to be paid to man the job.

Sirrine (industrial) — The unavailability of skilled labor was definitely a factor, as rivet crews have been very difficult to obtain since World War II. The crews used in erecting steel with high-tensile bolts are not specialists like riveters.

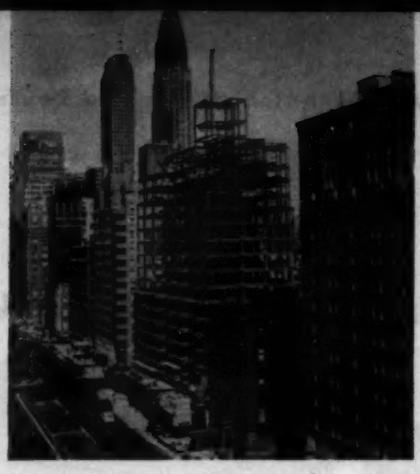
Kemp (commercial) — Unavailability of welders and riveting crews was prime factor. . . . Less labor was involved.

Cram (commercial) — Fitting-up crews can continue as bolters and save both time and money.

Time

Lawrence (hospital) — Erection time was materially shortened using only 37 working days for a 15-story building in a difficult working site.

Mayper (stadium) — It actually takes less time and this was a big factor on this job.



Russell, Burchell & Ward Bolt and Nut Co.

Bethlehem Steel Co.

An 18-story apartment building on Park Ave. (left) is the first building in New York City to be entirely field-connected with high-strength bolts. Architects Sylvan Bien and Robert L. Bien, New York. Above: Ford Assembly Plant, Mahwah, N. J., is low and spread out. Giffels & Vallet, Inc., L. Rossetti, Architects and Engineers

Sirrine (*industrial*) — The use of less skilled labor in bolting up the steel definitely saved time and was accomplished without paying premium rates to the bolting crews, as is often necessary when using riveting crews.

Cram (*commercial*) — The bolting time on this project was just about the same as would be involved on a rivet job. This, of course, was due to the fact that it was one of the first projects of this type. We understand that this time would be considerably reduced if the job were to be done now.

Feldhausen (*school*) — The necessary equipment for riveting such as forge, scaffolding, heating of rivets are eliminated. Therefore, I would consider riveting a little more time-consuming than bolts.

Noise

Ellerbe (*hospital*) — A good bolt job will be somewhat noisy, but it is a noise considerably easier on the nervous system.

Blanchard (*school*) — Adjoining hospital facilities dictated the least practicable noise level during erection. Field rivets were therefore not considered acceptable.

Schmidt (*school*) — Noise was the main reason for using high-tensile bolts.

Feldhausen (*school*) — In many communities, particularly in school construction and densely populated areas, the noise factor is of great importance.

Brown (*school*) — The quieter operation of the impact wrench is a great improvement over the riveting operation.

Safety

Ellerbe (*hospital*) — Much safer. Construction operations can progress under bolters that would never be permitted under riveters.

Garfield (*hospital*) — We do not believe there is much difference between the two methods, as falling bolts are about as dangerous as falling rivets.

Harley (*industrial*) — Absence of heating furnaces was a definite reduction in possible fire hazard.

Blanchard (*school*) — The steel erectors favor bolts from a safety standpoint.

Feldhausen (*school*) — Bolts do away with the erection or moving of scaffolding, which is the cause of accidents. In a bolted connection, scaffolding is unnecessary as all work can be accomplished from the supported beams.

Cost

Ellerbe (*hospital*) — Our experience indicated there is no cost difference on the structural frame. The higher cost of the bolts offset the savings in labor. Comparative cost figures from one of our 1954 projects as follows:

Bolt cost (avg.)	30¢	Rivet cost	12¢
Washers	7¢	Labor	65¢
Labor	40¢		
Total	77¢	*Total*	77¢

Lawrence (*hospital*) — Typical designs of (1) simple riveted, (2) fully continuous welded, and (3) semi-continuous hi-tensile bolted submitted to various steel fabricators indicated that type (3) would be slightly less cost per ton than (1) and would be less tonnage than (1) by about 7%, due to semi-continuity based on A.I.S.C. report #206.

Garfield (*hospital*) — Theoretically cost should have been less, but since it was a new technique I am not sure that an actual saving resulted.

Kahn (*industrial*) — Some contractors allow about 2 per cent reduction for use of high-tensile bolts; others make no change in their price.

Hedrick (*commercial*) — Increase in material costs were somewhat more than offset in labor costs and reduction of overall time required.

Feldhausen (*school*) — Costs are dependent on the principle of framing, as high-tension bolts will take more bearing and shear than rivets, both being of equal size. This permits less detailing of shop drawings of beam to column connections which are properly designed for shop and field fabrication.

Strength

Ellerbe (*hospital*) — The ordinary building structure will be no stronger; bridges or structures subjected to dynamic loading will be better high-tensile bolted than riveted.

Whitman (*industrial*) — Tests to date have indicated either as strong a bolt, or in most cases, a stronger bolt than the riveted joints. Much is to be done to the codes and design standards to take advantage of the true strength of the bolted joints.

Mayper (*stadium*) — I feel that high-strength bolts can have a more uniformly distributed stress in one joint over a riveted one, giving greater assurance especially under vibration that the joint will stay tight.

Cram (*commercial*) — In providing stiffer connections, which high-strength bolts do, the combined effect of stiffer connections throughout the structure naturally tends to a greater stiffness and a stronger building throughout.

Blanchard (*school*) — High-strength bolts are considered to be better than rivets from the standpoint of building rigidity and ultimate strength. However, serious joint deflection and consequent damage from an earthquake might occur at about the same loads for either riveted or high-strength bolted joints.

HEATING-COOLING: RESEARCH STUDIES

In ceiling-height perimeter forced-water system, finned coils with plastic troughs are concealed by a valance

The perimeter system of heating and cooling has been raised from floor to ceiling in a unique test installation at the John B. Pierce Foundation. The system, described as a "valance heating and cooling system," consists of conventional extended surface fins supported by brackets and concealed by a valance, but placed as close to the ceiling as the baseboard type of system is to the floor. It is designed to produce a stratification of extremely hot air at the top of the room, thus warming the ceiling, which in turn radiates to the floor and to the occupants of the room.

Engineers at the Pierce Foundation, an independent, non-profit organization devoted to scientific research in the general field of heating, ventilating and sanitation, have been conducting tests for over a year on installations in their offices in New Haven, Conn. They feel that utilization of the ceiling as a radiating surface is a natural progression. The floor proved to be an efficient and practical surface for panel heating in slab-on-grade houses. Lower and lower baseboard radiating or convecting surfaces were effective as new heating installations in existing houses. This was in accordance with the principle that a low perimeter or floor panel heating surface reduces the ceiling-to-floor temperature differential and provides more generally uniform heating results. This even heat transferal has also shown that the average temperature of all the surrounding surfaces — walls, furniture, etc. — is important as far as the effectiveness of a radiant heating system is concerned.

In the Pierce installation the radiating surface has jumped from floor to ceiling for two major reasons: (1) it is obvious that radiant heat transfer can, after all, travel downward just as effectively as it will upward, and (2) the system can be operated as a cooling system during warm weather.

The first ceiling radiant heating system was a conventional one, in which copper tubing was embedded in the ceiling plaster. However, the temperature of the circulated water, say Pierce engineers, has to be limited to about 130 F because temperatures higher than that could cause expansion that would crack the plaster. In the valance system, the upper strata of the air at the ceiling are heated by hot water of very high temperatures which flows through finned pipes around the ceiling perimeter. The hot air remains stratified at the ceiling, with little mixing with the air at the lower levels, and the room itself is heated by means of radiant heating from the ceiling surface and the valance surface. Even in rooms with ceiling heights as low as 7 ft 10 in. the mixture of "stratified" heated air with the air below is not noticeable at normal standing heights.

During the cooling cycle, cold water (around 45 F) is run through the system instead of hot water. Normal gravitation carries the air, which has been cooled by passing over the cold fin surfaces, down the walls, thus cooling the room to comfortable temperatures. A trough consisting of a 1½-in. standard plastic pipe cut in half is run directly under the water pipes to catch the condensed moisture. The fins are installed so that they point into the troughs. Heat transfer through the plastic trough is such that insulation is not required to prevent condensation. Thermostats in the test installation control a summer-winter switch which causes motor-operated valves to close on a temperature increase in the winter and to open on a temperature increase in the summer.

As far as costs of the valance system are concerned, the large fins which are required to create high ceiling air temperatures increase the cost above that for a baseboard system. However, lower installation costs will contribute to offsetting this material cost. Also, the larger fins will give a greater cooling area in the summer as well as more heating area in winter. Other advantages of the valance system are as follows:

1. The ceiling is the largest unobstructed surface in the average room.
2. No floor space need be used, and cutting through floors and walls is reduced to a minimum.
3. Wall areas are left free.
4. Finned pipes can be installed in one continuous loop without interference from doorways or any other obstructions.
5. The valances can be used also to hide the hardware for draw draperies.

HAVE PROVED NEW RESIDENTIAL SYSTEMS

The atom may figure in the heating-cooling picture soon. A baby reactor will be the power source

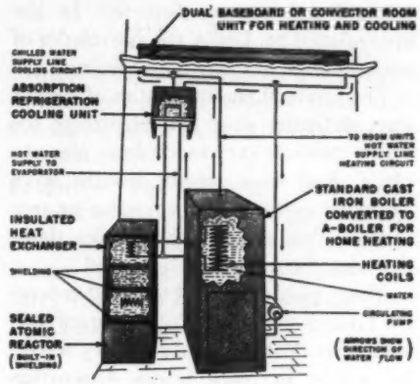
An "A-boiler" system, which will heat and cool homes economically by means of a miniature reactor connected to a standard boiler, may not be in the too distant future, predicted Robert E. Ferry, general manager of the Institute of Boiler and Radiator Manufacturers, at its 40th anniversary meeting.

The system, which can be added to existing home heating boilers or installed as an integrated package, can provide hot water for heating in winter, cold water for cooling in summer, a virtually unlimited supply of household hot water and heat for melting snow from walks and driveways. The power for all this heat will derive from a multiple-shielded portable reactor, about twice the size of an automobile battery, which will be sealed and set in operation at the factory. It would be replaced at the end of its 6-year life by a fresh reactor.

The heat transfer, as shown in the sketch at right, would be from coils in the sealed reactor through three shielded chambers to either the boiler or the small absorption refrigeration unit, which operates on heat. The two chambers between the reactor chamber and the insulated heat exchanger contain (1) water surrounding a coil and (2) a viscous fluid to shield out gamma rays. Water of about 225 F would be produced in the boiler.

The chief foreseeable problem which would hold up availability of the A-boiler system beyond the next 3 to 6 years, according to Mr. Ferry, is lack of adequate supplies of fissionable material at reasonable cost. The fissionable material would supposedly be an "impoverished" fuel or some form of radioactive ash, so that there could be no chain reaction to set off an explosion. The basic questions of design, material and shielding are no longer problems.

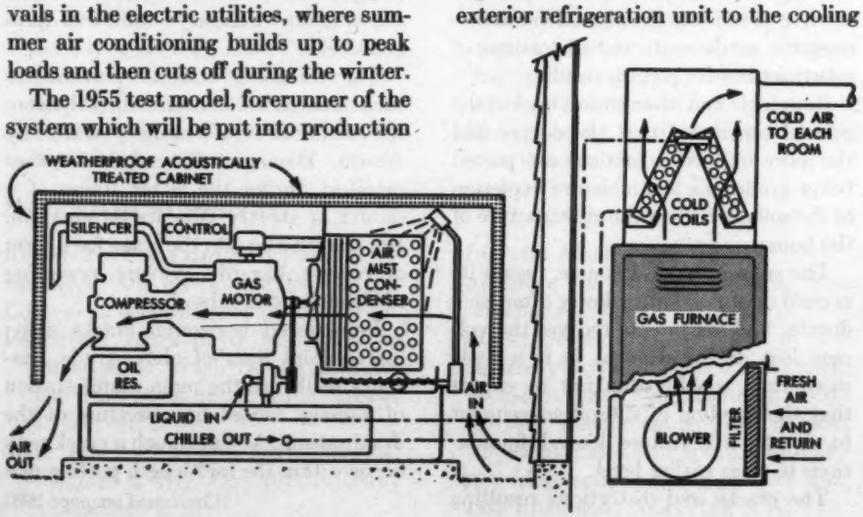
The estimated cost figure published for the A-boiler over a 6-year period is $300 as compared with a $1500 average 6-year expenditure for operation of a conventional heating, cooling, hot water system. In addition, said Mr. Ferry, $300 to $500 might be saved in construction costs by the elimination of the need for a chimney.


DUAL BASEBOARD OR CONVECTOR ROOM UNIT FOR HEATING AND COOLING
ABSORPTION REFRIGERATION COOLING UNIT
STANDARD CAST IRON BOILER CONVERTED TO A-BOILER FOR HOME HEATING
INSULATED HEAT EXCHANGER
HEATING COILS
SEALED ATOMIC REACTOR

Gas-powered air conditioners will be integrated with gas-fired furnaces for houses in 1956

A gas-powered summer air conditioner for homes, which can be used in conjunction with a conventional gas-fired furnace, will make its appearance in 1956 after three years of intensive research. This research stemmed from the heavy trend toward gas heating in many areas, which built up a winter peak load on gas utilities and then dipped to a serious summer decline. The situation is a converse parallel to that which prevails in the electric utilities, where summer air conditioning builds up to peak loads and then cuts off during the winter.

The 1955 test model, forerunner of the system which will be put into production next year, is a remote, air-cooled unit. As shown in the drawing below, a complete factory-assembled refrigeration system is enclosed in a weatherproof acoustic cabinet outside the house. Inside the box, which is no larger than the cooling tower required for an ordinary system, is everything necessary to convert the heat energy of gas into a chilled liquid. Chilled liquid lines and liquid return lines will be run from the exterior refrigeration unit to the cooling coils on top of the furnace. Conventional in-wall ducts and standard registers can be used to supply both cooled air in summer and heated air during the winter.



Current designs include 3- and 5-ton units, the most popular sizes in the residential market. Other systems of residential gas air conditioning are being studied and will be in the field stage next year, according to Sheldon Coleman, president of the Coleman Co., which will manufacture the system. Three independent research organizations are assisting in the developments. The binary jet system of gas cooling is being investigated by Arthur D. Little, Inc., Cambridge, Mass. The Institute of Gas Technology in Chicago is working on a new approach to the absorption cycle. And the Texas College of Arts and Industries at Kingsville, Tex., is studying the absorption cycle. Other companies working with Coleman on component parts of the system are D. W. Onan & Sons on the gas motor, Minneapolis-Honeywell on controls and the Copeland Refrigeration Co. on the compressor.

DRY WEATHER MAKES SOILS SHRINK, WALLS CRACK

Drouth may be the cause of cracked walls and foundations says Charles W. Martin, a St. Louis structural engineer

Extremely dry weather in the past several years has not only bothered farmers, but many homeowners as well. If their houses have been built on clay subsoil, there is a chance that the ground has dried out so much that foundations and above-grade masonry walls have cracked and become distorted. In the area around St. Louis, the prevalence of such damage has become alarming.

The physical characteristics of clay of any particular class cannot, except for water content, vary much from place to place. And since recent drouths have extended over a region covering an area of many thousands of square miles, damage must be quite widely spread.

The typical subsoil of the land around St. Louis is yellow clay of moderate consolidation. With normal capillary water, its weight in place before excavation averages 110 lb per cu ft. If solid, a cubic foot of clay would weigh about 160 lb; the difference between the 160 and 110 figures represents voids and, hence, compressibility.

When fairly normal weather conditions prevail, the amount of capillary water in clay soil at a depth of 5 or 6 ft below the ground surface may, locally, average as much as 15 or 20 per cent by volume. At or near the tail end of a drouth, the amount of capillary water at such a depth, or even greater, may be reduced to 4 or 5 per cent by volume. In one instance I found extremely dry, hard clay extending down to a depth of 10.6 ft below grade. At a depth of 12.2 ft, however, the clay was found to be damp and plastic. Instances of finding hard, dry clay at depths somewhat greater than 10.6 ft have been reported.

Clay contracts both horizontally and vertically as its capillary water is withdrawn. Evidence of horizontal contraction of clay may be observed during drouth — random cracks in the ground surface; open gaps between the faces of foundation walls and the adjacent ground. Evidence of vertical contraction, however, is not so readily observed. Some people claim that vertical contraction of clay during drouth causes sizable, strata-like, horizontal cavities in the subsoil below foundations. However, I have never seen any of these cavities in my experience. I have seen triangular-sectioned, linear cavities with a ¼-in. or slightly larger vertical gap, and a horizontal gap as much as 7-in. long under the outer edges of footings of basement walls. Such linear cavities are a logical consequence of extended drouth.

The soil below the outer edge of the footing, having critical exposure to the moisture-depleting effect of drouth, contracts more than does the less exposed soil below the inner edge of the footing. Such an eccentric bearing condition under the footing of a basement wall tends to rotate the top of the wall outwardly; and because vertical contraction and horizontal contraction of clay are concurrent, the resistance, if any, to such outward rotation must be supplied by the basement wall or by other construction above it. Thus the depletion of the capillary moisture may have a two-fold effect on the substructure of a building — it may cause not only settlement, but outward rotation as well.

The bottoms of footings for the outer masonry walls of a house are set most generally at different distances below the finish grade of front, rear and side yards; and the ground adjacent the walls is not subject to equal moisture depletion by drouth, because of its position relative to the sun. From such variances, eccentric settlements and distortions of substructures frequently result.

Both logic and observation lead to the general conclusion that the deeper and the more uniformly footings are placed below grade, the less moisture depletion of the soil may affect the substructure of the house.

The subsoil does, of course, regain its normal quota of water slowly after each drouth, and expands to recover the volume lost during drouth. It is a little more than wishful thinking to expect that the swelling of subsoil subsequent to drouth will restore loaded foundations to their earlier level.

The cracks and distortions resulting from subsoil contraction during drouth conform to no fixed rule or pattern. On the exterior faces of above-grade masonry walls the cracks most frequently zigzag this way and that, generally along mortar-joint lines, and across masonry units at irregular intervals; and they generally follow a diagonal path upward to an eave line or to a wall corner.

The cracks follow the lines of least resistance, and window openings are their meat. In non-reinforced, cast-in-place concrete walls of basements, the cracks usually follow irregular vertical lines or irregular diagonal lines approaching the vertical. In basement walls constructed of masonry units, the cracks generally zigzag upward following mortar-joint lines and crossing units at intervals.

The cracks on the room sides of masonry walls have a pattern more or less similar to the pattern of cracks on the exterior, the degree of similarity depending on the type of masonry backing and the rigidity of the bond to the facing units.

The widths of crevices of the vertical portions of cracks in above-grade masonry walls are generally more pronounced than the crevices of horizontal portions; the former may at places be as wide as ½ in., or more. In general, the formation of basement wall cracks is abrupt, and the formation of cracks in above-grade masonry walls is progressive.

The foregoing context pertains to such damage which results directly from the withdrawal of capillary water by drouth. Damage most often becomes manifest during the latter stages of a drouth or shortly after its termination. But drouth also sets the stage for a form of reverse hazard — violent rewetting of the dried out subsoil.

Pronounced horizontal cracks along mortar-joint lines of above-grade, masonry walls are the main manifestation of damage caused by rewetting of the dried subsoil. At times such a crack may occur within the mid-length portion of a

(*Continued on page 208*)

PAINTS AND FINISHES

Some of the most recent products for a variety of surface coverages. For a discussion of basic qualities of the general categories of paints and finishes for particular surfaces, see Time-Saver Standards pages 201, 203 and 205

WOOD

Waterspar Varnish Extra Pale Clear
Surfaces: Exterior or interior wood. Also metal and linoleum
Features: Dries in 2½ to 3 hr. Resistant to scrubbing and abrasion
Mfr: Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Sapolin Shake and Shingle Finish
Surfaces: Exterior rough wood surfaces
Colors: Leaf, pine, pewter, charcoal, redwood, bark
Features: Weather-resistant. High degree of color consistency
Mfr: Sapolin Paints Inc., 229 East 42d St., New York, N. Y.

"Taylor-Made" Wood Coatings
Surfaces: Exterior wood
Colors: Transparent and translucent clear, redwood stain
Features: Weather-resistant
Mfr: Beneficial Chemical Products, Inc., 4350 York Blvd., Los Angeles 41, Calif.

EXTERIOR MASONRY

Hydrocide Colorcoat
Surfaces: Exterior masonry. Also interior masonry and primed wood
Colors: 11 colors
Features: Oil-base paint. Provides water repellency, durability, elasticity. Stands extreme temperature changes
Mfr: L. Sonneborn Sons, Inc., Building Products Div., 404 Fourth Ave., New York 16, N. Y.

"Rub-R-Clad" Masonry Finish
Surfaces: Exterior masonry. Also interior masonry
Colors: 10 "region-keyed" colors and white
Features: Polyvinyl acetate base. Resistant to alkalies, blistering, staining
Mfr: Adelphi Paint & Color Works, Inc., 86-00 Dumont Ave., Ozone Park 17, N. Y.

Vimasco Carlon Masonry Coating
Surfaces: Exterior masonry. Also steel
Colors: White, black, aluminum and 20 other colors
Features: Bakelite vinyl resin base. Dries to the touch in 20 min. Resists chemicals, weathering, abrasion, moisture, chipping, peeling, salt water
Mfr: Vimasco Corp., Box 4063, Station A, Charleston, W. Va.

FLOORS

Surfcoat Floor Seal And Finish
Surfaces: Hardwood and softwood floors. Also concrete floors
Color: Light, non-glare mat finish
Features: Combination seal and finish. Dries in 4 hr. Resistant to grease, oil, alcohol, water, abrasion
Mfr: Hillyard Chemical Co., St. Jos., Mo.

One-Day Floor Finishing System
Surfaces: Wood floors. Also interior woodwork and exterior surfaces
Features: Dries within 10 hr. Is both a sealer and an alkyd varnish
Colors: Clear, non-yellowing
Mfr: The Sherwin-Williams Co., Cleveland 1, Ohio.

Wesco Masonry Floor Finish
Surfaces: Concrete floors, patios, steps. Also primed wood and metal
Colors: Red, green, gray
Features: Resistant to alkalies, acids, abrasion, scuffing and weathering
Mfr: Wesco Waterpaint Co., Berkeley, Calif.

METALS

Galvinoleum
Surfaces: Galvanized metal surfaces
Colors: Red, gray, green or metallic
Features: Coats new, old, previously painted or partially rusted galvanized surfaces without etching. Dries to touch in less than 12 hr
Mfr: Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

Acanal Protective Paint
Surfaces: Metal. Also masonry
Features: Plastic skin won't oxidize or chemically deteriorate. Protects from corrosive action of acids, alkalies, fruit juices, salts, petroleum products, alcohol. Non-toxic
Mfr: Garland Co., 3748 East 91st St., Cleveland 5, Ohio.

Tame Rust Alkyd Gloss Enamel
Surfaces: Exterior and interior metal, old or new
Colors: Yellow, orange, green, red, gray, black
Features: Used over Tame Rust metal primer
Mfr: The O'Brien Corp., South Bend, Ind.

INTERIOR SURFACES

Ready-To-Use Luminall Paint
Surfaces: Any interior surface
Colors: 12 decorator colors
Features: Latex-alkyd base. Built-in primer-sealer. Washable. Dries in less than 1 hr. Resistant to water, grease, oil, ink, dirt
Mfr: Luminall Paints Div., National Chemical & Mfg. Co., 3617 So. May St., Chicago 9, Ill.

Macrylic Plastic Coating
Surfaces: All interior surfaces. Also exterior masonry
Colors: Decorator colors
Features: Rohm & Haas acrylic resin. Achieves maximum toughness within 45 min. Resists aging, heat, mildew, chemical fumes, salt spray, sunshine
Mfr: Maintenance Coatings Co., Inc., 141 Broadway, New York 6, N. Y.

Cindablock Primer-Filler White
Surfaces: Interior rough, abrasive cinder and aggregate block
Colors: White
Features: Fills voids in masonry for smooth top coat of flat paint or eggshell enamel
Mfr: Pratt & Lambert, Inc., 3301 38th Ave., Long Island City 1, N. Y.

(Continued on page 216)

FILMS *Each year a number of films are originated by corporations and organizations which depict uses, particular or unusual applications, production and marketing of new products, or just simply the reasons for making them. Most films are available for showing, either for no charge or a nominal one, upon request on company or firm letterhead. Some of those issued during the past year are listed below:*

DOORS. Aluminum glass sliding doors are pictured in a 10 min, 16 mm, sound, color film which shows types of weatherstripping and finishing, typical installations and construction as well as operative features. *Ador Sales, Inc., 1631 Beverly Blvd., Los Angeles, Calif.*

METAL FRAMING. "The Sky's the Limit" presents the technical features and the functions of *Unistrut* metal framing system. 23 min, 16 mm, sound, color. *Unistrut Products Co., 1013 W. Washington Blvd., Dept. N.F., Chicago 7, Ill.*

HEATING SYSTEMS. "Anaconda P.G.'s" shows a system of engineering and installing radiant panel heating systems with preformed copper tube panel grids. 15 min, 16 mm, sound, color. *The American Brass Co., Building Products Service Dept., Waterbury, Conn.*

The installation and uses of radiant baseboard heating are explained in a 20 min, 16 mm sound film from *Kritzer Radiant Coils, 2901 Lawrence Ave., Chicago, Ill.*

WATER HEATER. "A Clean Start" describes the use of *Burkay* commercial water heaters in the restaurant business. 15 min, sound, color. *Permaglas Div. (Don Williams), A. O. Smith Corp., Kankakee, Ill.*

AIR CONDITIONING. "The Case of the Hot Weather Blues" describes the benefits of cooling and air conditioning and illustrates types and styles of units. 13 min, sound. *Worthington Corp., Visual Aids Unit, Harrison, N. Y.*

VENTILATION. "Industrial Axial Flow Fans" describes the three basic types of axial flow fans, discussing their characteristics as well as engineering and testing methods for industrial propeller fans. 13 min, 16 mm, sound. *Aerovent Fan Co., Inc., 725 East Ash St., Piqua, Ohio.*

CONVEYOR SYSTEMS. "Movement Is Life" depicts the scope and variety of jobs by conveyor systems. 20 min, 16 mm, sound. *Conveyor Equipment Mfrs. Assoc., Washington 5, D. C.*

PIPING. "Pennywise, the Story of Anaconda Type M Copper Tubing" shows installation of various soil, waste and vent lines of copper tubes for sanitary drainage systems in commercial and domestic plumbing. 17 min, 16 mm, sound, color. *The American Brass Co., Building Products Service Dept., Waterbury 20, Conn.*

"White Pipe" describes four types of *Transite* pipe for the home — building sewer pipe, plumbing vent pipe, warm air duct and gas vent. 35 min, 16 mm, sound, color. *Johns-Manville, 22 East 40th St., New York 16.*

STEEL PRODUCTS. "An Orchid to Mr. Jordan" portrays the production, fabrication and applications of U. S. Steel stainless steel. 25 min, 16 and 35 mm, sound, color.

"Building for the United Nations" records the fabrication and erection of the structural steelwork for the U.N. building. 35 min, 16 mm, sound, color.

"Walls without Welds" presents methods of manufacturing seamless steel pipes and tubes. 28 min, 16 and 35 mm, sound, color. All three films available from *Film Distribution Center, U. S. Steel Corp., 71 Broadway, New York 6.*

TILE WORK. "How to Get Better Tile Installations" demonstrates the proper setting of tile by both the mortar and the adhesive methods. 17 min, color, sound. *Tile Council of America, 10 East 40th St., New York 16.*

UPHOLSTERY. "The Purple Cow" illustrates the up-to-date applications of leather upholstery. 16 mm, sound, color. *The Upholstery Leather Group, 141 East 44th St., New York 17.*

LITERATURE

Gymnasium Equipment. A 60-page, illustrated catalog shows a complete line of heavy-duty playground, dressing room and outdoor gymnasium equipment along with suggestions for best utilization of ground space, safety considerations and proper installation. *American Playground Device Co., Anderson, Ind.*

Lighting. The enlarged edition of *Lighting for Industry* is a 112-page, illustrated reference on industrial lighting, offering general engineering information on the principles and economics of lighting as well as solutions to specific lighting problems. *Holophane Co., Inc., 342 Madison Ave., New York 17, N. Y.*

Drafting Equipment. Steel drafting equipment is described in a 22-page booklet which includes photographs and specifications. *Stacor Equipment Co., 768–778 E. New York Ave., Brooklyn 3, N. Y.*

Southern Hardwoods. *Southern Hardwoods for Paneling and Interior Woodwork* lists the properties of 18 southern hardwoods and gives specification information. 12 pp, illus. *Southern Hardwood Producers, Inc., 805 Sterick Bldg., Memphis 3, Tenn.*

Built-in Refrigeration. Kitchen plans and full-color illustrations of built-in refrigeration installations are included in a brochure from *Revco, Inc., Deerfield, Mich.*

Stainless Steel. A 6-page folder lists exterior and interior applications of stainless steel as well as recommended specifications. *Product Information Service, Armco Steel Corp., Middleton, Ohio.*

Skylights. *Solardomes Designed for a Brighter Lifetime* gives application and installation information about Solardome Plexiglas skylights. illus. *Solardome Div., Klise Mfg. Co., 50 Cottage Grove St., Grand Rapids 2, Mich.*

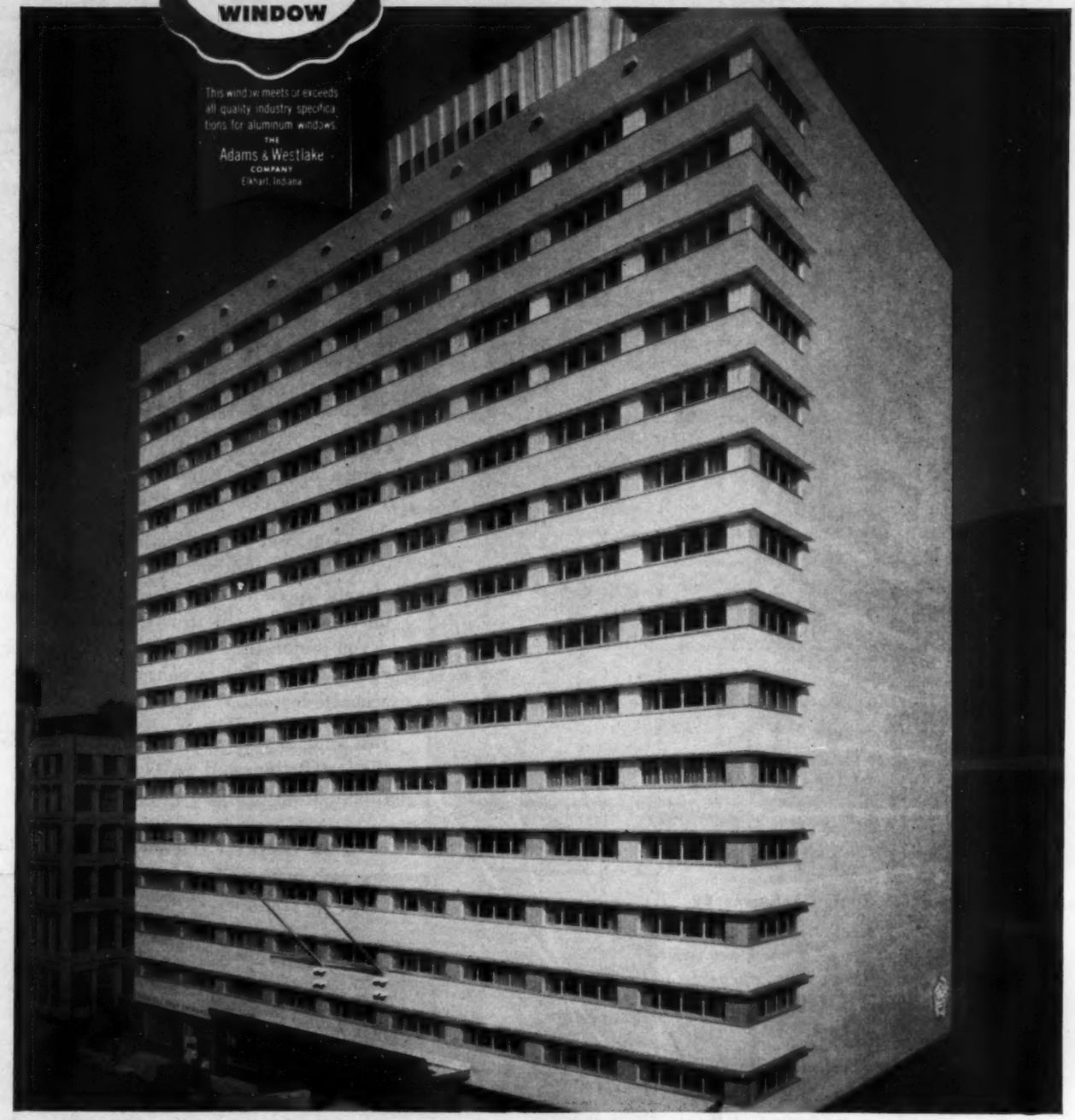
Solar Shades. Solar shades of embossed aluminum and fiber glass air foil are illustrated and specified in a 4-page folder which shows typical applications. *Superior Window Co., Miami, Fla.*

**Other product information in Sweet's Architectural File, 1955.*

(Continued on page 262)

Another Adlake aluminum window installation

Adlake
PROVEN QUALITY WINDOW



Home Office Building, State Insurance Fund, New York, N.Y. Architects: Lorimer Rich Associates. General Contractor: Cauldwell-Wingate Company.

Equipped with Adlake Series 1000 Reversible Window

- Minimum air infiltration
- Finger-tip control
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- Guaranteed non-metallic weatherstripping

(*patented serrated guides on double hung windows*)

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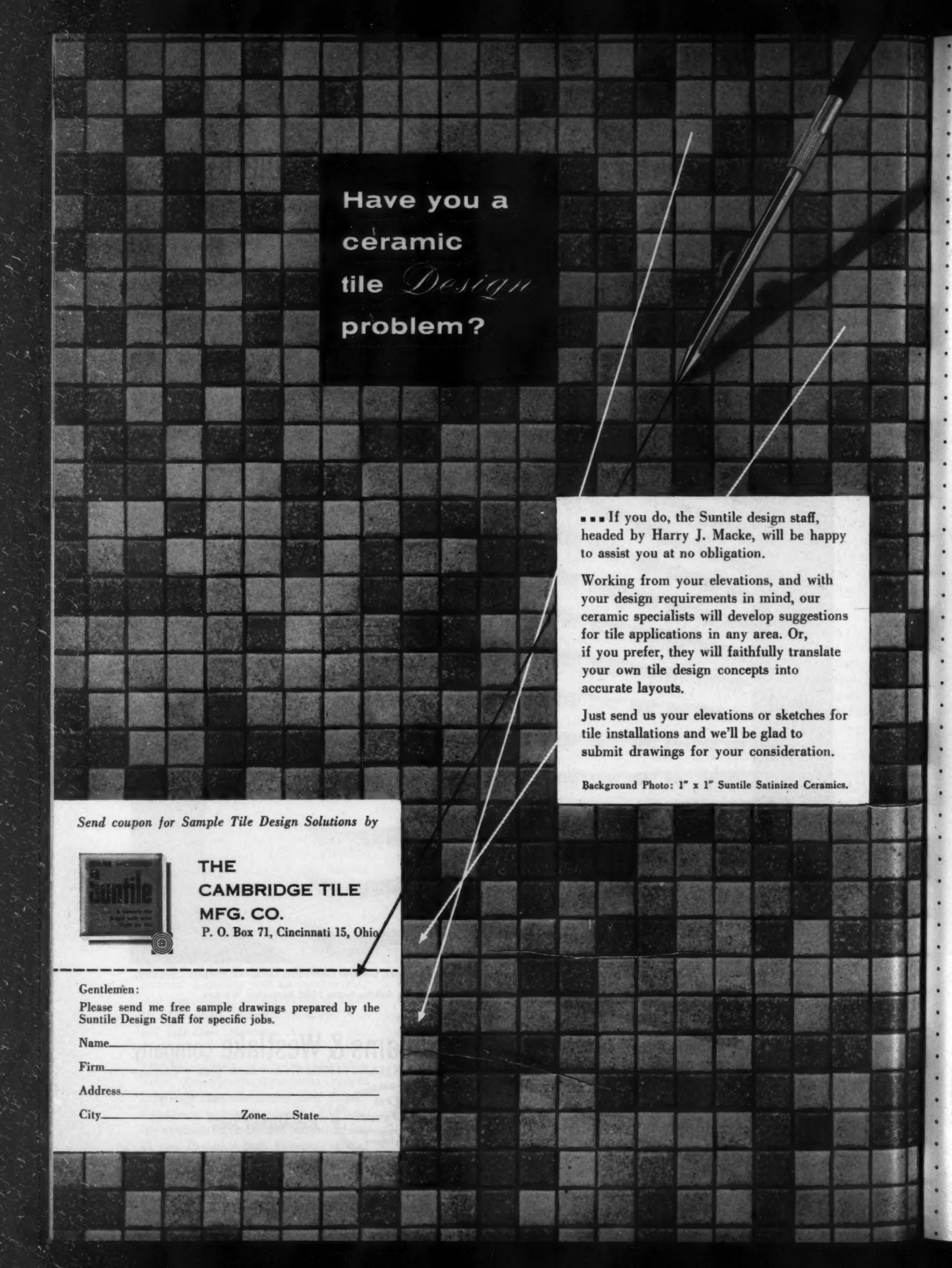

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Working from your elevations, and with your design requirements in mind, our ceramic specialists will develop suggestions for tile applications in any area. Or, if you prefer, they will faithfully translate your own tile design concepts into accurate layouts.

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PAINTS AND FINISHES—INTERIOR AND EXTERIOR: 1

Paint is a medium which imparts to a surface, in addition to decor, both durability and protection against deteriorating elements to a degree that depends upon the ingredients in the solution and the type of surface. In this summary the qualities of the general categories of paints and finishes are presented with an eye toward their most practical applications to particular types of surfaces: interior masonry, interior wood trim, exterior masonry, exterior wood, floors and metal surfaces. No attempt has been made to include special waterproofing coatings, as these are a study in themselves.

With the exception of the most recently developed acrylic finishes, practically all conventional paints and accessory materials required for architectural uses are adequately covered by Federal Specifications, which are available from the U. S. Government Printing Office. These specifications provide criteria for the selection of paints and can be employed as a basis of quality and performance.

Definitions

Vehicles are the liquid portions of pigmented paints. They serve as "carriers" for the pigments. The vehicle usually contains *both* volatile and non-volatile components. The volatile, or solvent, component, such as mineral spirits or water, serves two major purposes: (1) it facilitates application of the paint, and (2) by its evaporation it contributes to the drying of the paint film. The non-volatile component, referred to as the "binder," remains as an integral part of the paint film to bind the pigment particles together. Durability of the paint and adhesion of the film to the surface are largely functions of the binder. Typical binders or non-volatile vehicles include drying oils (linseed, tung), alkyd and phenolic resins and acrylic and vinyl resin emulsions (latexes).

Pigments include natural and synthetic, organic and inorganic types. For example, titanium dioxide is a synthetic inorganic pigment, while toluidine red and yellow are synthetic organic pigments. Pigments are employed to impart color and hiding power, as well as to protect the organic vehicle binder from the damaging rays of the sun. Hiding power, or the ability of the paint to obscure underlying color, varies with the different types of pigments. Dark pigments are more effective than light pigments. Of the commonly used white pigments, titanium dioxide is the most effective, while white lead is the least effective. Fading and color change result partly from instability of the pigmentation. Blue and green pigments generally are most susceptible to fading outdoors, with even some variation among these.

Clear coatings include varnishes, unpigmented lacquers, shellacs, clear sealers, wax polishes and water-repellent coatings. In general, they do not have the same protection against sunlight as pigmented coatings.

Varnish is a homogeneous solution of resin, drying oil, drier and solvent. Varnish dries by evaporation of the solvent followed by oxidation and polymerization of the drying oils and resins. It is commonly used as the vehicle in pigmented paints and enamels of the quick-drying, smooth-leveling types.

Lacquer is any type of organic coating that dries rapidly and solely by evaporation of the solvent. Typical solvents are acetates, alcohols and ketones. Although lacquers were generally based on nitrocellulose, manufacturers currently use vinyl resins, plasticizers and reacted drying oils to improve adhesion and elasticity.

Shellac is a solution of refined lac resin in denatured alcohol. It dries by evaporation of the alcohol. The resin is generally furnished in orange and bleached grades. Shellac comes in various "cuts," which indicate the amount of resin in pounds added to 1 gal of solvent: 4-, 4.5- and 5-lb cuts cover the range of light, medium and heavy grades used. Shellac can be used to seal knots in wood prior to painting.

Emulsion paints generally employ synthetic emulsion resins today and are water-thinned.

Interior: Masonry, Plaster, Wallboard

New interior surfaces of plaster, wallboard and masonry should be coated first with a primer-sealer and then with finish coats. Alkyd-type primer-sealers are used more extensively today than conventional oil types, especially under alkyd paints, although they can be used under finishes of any base. The new acrylic primer-sealers, which can be used under any type finish, are finding wider use because of their ease of application, resistance to alkalinity and rapid drying time. Common finishes are listed below:

Acrylic resin emulsion paint	Excellent durability Excellent washability immediately upon drying Excellent resistance to moisture Excellent hiding power in colors, fair in white
Latex paint	Good durability, except on hot surfaces Excellent washability, contingent upon chemical curing, which varies from 30 to 90 days Excellent hiding power in white, fair in colors
Alkyd flat enamel	Good durability Good resistance to moisture and washing Excellent hiding power and appearance
Oil flat paint	Good durability Fair resistance to moisture and washing Good hiding power and appearance
Casein and alkyd resin emulsion paints	Still used, but to a much lesser extent because of poor resistance to moisture and washing

Prepared with the assistance of Benjamin J. Harris, Maintenance Coatings Co., Inc. and John C. Moore, National Paint, Varnish and Lacquer Association, Inc.

The school building budget—
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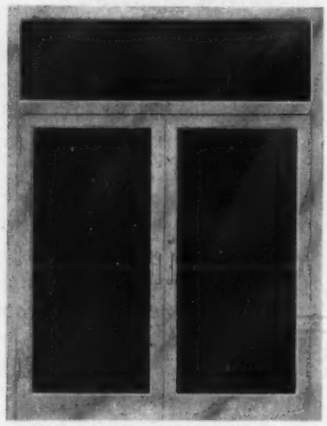
Too often, in the jargon of selling, economy is glibly paired with quality. It isn't good enough to say so—it has to be. You are confronted with problems imposed by economy, nevertheless you want to provide the best facilities you can for the money. To fulfill your responsibilities to the community, you have to be sure of both.

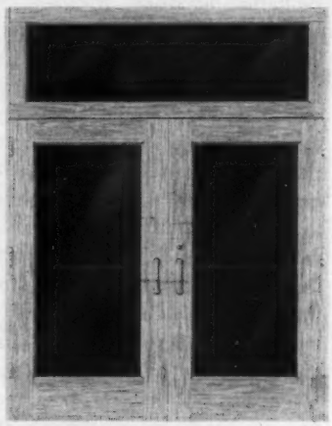
Amarlite production is geared only to quality—a quality we believe is unquestioned. And yet, on a cold cost analysis, this is the entrance picture:



STEEL ENTRANCE

	Labor	Material	Sub-Contractor
Doors (2)—Hollow Metal Doors, Frame, Transom and Trim	$50.00	$488.00	
Butts—3 Pair		21.00	
Overhead Closers (2)		45.00	
Threshold	2.00	15.00	
Surface Mounted Panic Hardware	10.00	142.00	
Glass & Glazing			$63.00
Painting			18.00
	$62.00	$711.00	$81.00

TOTAL **$854.00**



WOOD ENTRANCE

	Labor	Material	Sub-Contractor
Doors (2)—Birch	$30.00	$196.00	
Frame, Transom & Trim	20.00	90.00	
Butts—3 Pair	10.00	21.00	
Overhead Closer (2)	6.00	45.00	
Threshold	2.00	15.00	
Surface Mounted Panic Hardware	25.00	142.00	
Glass & Glazing			$52.00
Painting			18.00
	$93.00	$509.00	$70.00

TOTAL **$672.00**

AMARLITE ENTRANCE

	AMARLITE MX7284TF	Sub-Contractor
with Hinges, Closers, Thresholds and Amarlite Concealed Panic Hardware		$566.00
Glass & Glazing		76.00

TOTAL **$642.00**

NOTE: These costs have been provided by representative general contractors of high standing in metropolitan areas. They reflect no intention to set prices. While some variation can be expected, they will hold relatively true in most localities.

Savings mount considerably when you consider the fact that the Amarlite Entrance is complete. There are no costs for fittings, painting, applying hardware. This favorable comparison is the direct result of standardization and increasing efficiency within the Amarlite system. The finest entrance in the industry now *costs less* than products less distinctive. The savings are yours.

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PAINTS AND FINISHES—INTERIOR AND EXTERIOR: 2

Exterior: Wood

Pigmented paints for exterior wood surfaces are generally of the ready-mixed, linseed-oil-vehicle type. The pigments, apart from extenders, usually consist of white lead, titanium dioxide and zinc oxide. When combined in the proper proportions, they provide the optimum in hiding power, durability and repainting characteristics. Especially recommended for areas where industrial fumes are present are the high-quality titanium dioxide paints without lead pigments. They are white initially and stay white even in heavy fume areas where other white paints containing lead turn to gray, yellow and brown. Although three-coat painting of exterior wood has been conventional, it is now possible to apply two coats if properly executed. Regardless of the number of coats, the total thickness should be about the same. For two coats the primer should be applied at about 450 sq ft per gal and the finish coat at 550. For three coats the primer should be applied at 550 sq ft per gal and the succeeding finish coats at about 650.

Exterior oil paint	Zinc oxide hardens film and prevents mildew growth Chalking-type titanium imparts self-cleaning and good repainting characteristics Very slow drying
Oil trim enamel	Retains gloss well Good resistance to fading Very slow drying
Spar varnish	Excellent for doors, handrails, thresholds, etc., where maximum outdoor durability is desired
Stain	Good shingle stains, in various shades of red, brown and green, permit "breathing"

Floors: Wood

Wood floor finishes are usually formulated with a varnish vehicle for weatherability and effective penetration into the wood. Two coats are usually applied.

Oil-base enamel	Good wear resistance Good moisture resistance Recommended for softwood porches, steps and floors, both inside and outside
Varnish	Penetrating varnish is an effective sealer and leaves a thin but durable coating
Shellac	Seals wood and leaves a hard-gloss finish
Polishing-type wax	Protects a clear-finished surface and improves its appearance
Wax emulsion	Practical for an inexpensive, no-buffing floor treatment

Exterior: Masonry

For concrete, plaster, stucco, asbestos-cement siding, concrete masonry, brick and cinder block the exterior finishes listed below are used. Washability is not important in exterior paints. Many are formulated to "chalk" gradually, thus becoming self-cleaning.

Acrylic resin emulsion paint	Excellent durability Excellent alkali resistance Excellent color retention Fast drying
Latex (styrene/butadiene) paint	Excellent alkali resistance Good durability Color retention not so good as the acrylics Overnight drying
Polyvinyl acetate (p.v.a.) emulsion paint	Excellent alkali resistance Good durability Color retention not so good as the acrylics Overnight drying
Cement base paint	Suitable for coarse, rough surfaces. Smooth or glazed surfaces must be specially treated for roughening Excellent alkali resistance Good durability against moisture Overnight drying
Exterior oil paint	Good durability when applied to old masonry Vulnerable to attack by alkali

Floors: Concrete

Coatings on concrete floors do not vary much in appearance, at least not to an important degree. Their most important effects are the qualities they impart to the floor. Vehicles are usually selected on the basis of hardness and toughness, but they should not be so hard that they will be brittle and chip off when bumped. In addition to pigmentation to produce color and hiding power, inert pigments are sometimes added to contribute to the over-all wear and foot traffic resistance of the finish.

Epon resin base enamel	Excellent abrasion resistance Excellent alkali resistance Excellent adhesion Excellent resistance to grease and oil
Chlorinated rubber paint	Excellent wear resistance Excellent alkali resistance Excellent for damp floors
Varnish-base paint	Good wear resistance Good moisture resistance Excellent for dry, aged floors

Miami Beach's new $15,000,000 Fontainebleau Hotel depends on Chase Copper Tube and Fittings for entire plumbing and air conditioning systems!

Luxury and practical utility are perfectly combined at the Fontainebleau! Everything is top quality—so Chase Copper Tube and Fittings were chosen for the plumbing and air conditioning systems!

Using Chase Copper Tube and Fittings pays off in top-performing, longer-lasting systems that add extra value to any home or building. Such systems, too, cost *little or no more* than ones of ordinary rustable materials! That's because Chase copper tube and fittings can be installed faster—substantially reducing installation costs! Specify Chase copper tube and fittings on your next job!

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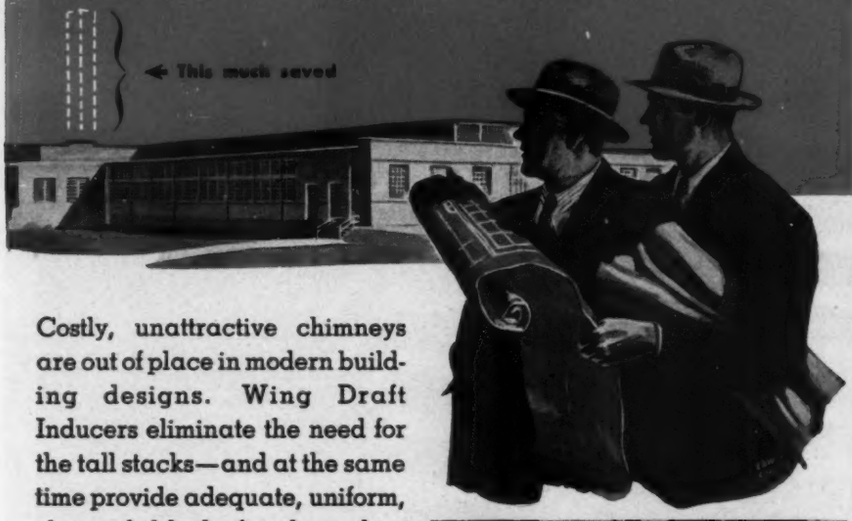
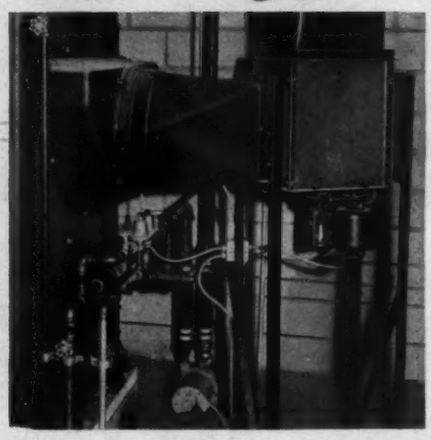
Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

We got rid of the high stack problem by using Wing Draft Inducers



Costly, unattractive chimneys are out of place in modern building designs. Wing Draft Inducers eliminate the need for the tall stacks—and at the same time provide adequate, uniform, *dependable* draft independent of weather conditions.

Wing Draft Inducer with integral Barometric Damper



Wing Draft Inducer mounted on steel framework

WING DRAFT INDUCERS produce positive draft in just the right volume to assure efficient combustion at all times. They cut operating costs by giving higher CO_2's. Smoking is reduced or eliminated. Higher boiler capacity is possible. Wing Draft Inducers are ruggedly built to give long, trouble-free operation. Write for a copy of Bulletin I-55. Use the coupon.

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Please send me Bulletin I-55—Draft Inducers
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Wing

AE ROUNDUP

(Continued from page 196)

WALL CRACKING

wall, but more frequently it occurs at a wall corner, and may extend for a considerable distance along each of the two intersecting walls. The crack most often follows a horizontal mortar-joint line located somewhere above the first floor and below the sill level of the ground floor windows. When the masonry is of reasonably good construction, the wall parts above the horizontal crack frequently remain in place for a considerable period by reason of cohesion and arch or cantilever action.

The prime cause of the horizontal cracks, as has been noted, is violent rewetting of dried out subsoil. But why such a crack occured cannot be determined by superficial examination. You'll have to dig to find the answer—a newly fractured water or sewer pipe, a ruptured connection between the underground extension of a downspout and a storm water drainage pipe, or other such means of rewetting. In one instance the homeowner himself was the culprit. To restore the vigor of drouth-stricken shrubs clustered around the corners of his house, he had installed a system of well point, subsoil irrigators with hose connections, and he had "socked 'em way down, turned 'em on, and just let 'em run."

Some random, one-man observations and conclusions: (1) Frame houses having lighter and more flexible wall construction, are less vulnerable to the hazards of drouth than are houses with masonry walls. (2) Rambling, one-story, basementless houses are particularly vulnerable to the hazards of drouth when their wall foundations are extended down to only the depth required to prevent heaving by frost. The relatively slight increased cost of a well-designed, reinforced concrete substructure is money well spent. (3) Residences on small lots in districts where the ratio of permeable area (yards) to impermeable area (roof, sidewalks, pavements, etc.) is small are less likely to have trouble than residences on large lots. (4) Whether trees adjacent to a residence extract a greater amount of moisture from the subsoil than their shade preserves is a debatable question. (5) The fact that only one of several similar neighboring residences may have been hit by drouth is not indication that the phenomenon can be preversely selective.

(Roundup continued on page 212)

ROTARY'S new headquarters

On its 50th anniversary Rotary International welcomes its members from 8600 clubs in 90 different countries to visit its new headquarters in Evanston, Illinois.

Architects
MAHER and McGREW
Evanston, Ill.

Consulting Engineers
NEILER, RICH & BLADEN
Chicago

Air Conditioning Contractor
C. W. JOHNSON, INC.

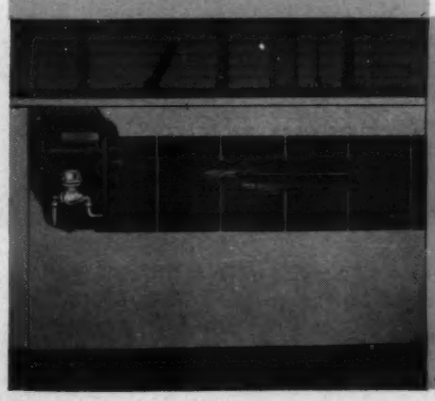
Plumbing Contractor
O'CALLAGHAN BROS.

POWERS Individual Room
Air Conditioning Control
. . . helps maintain perfect indoor climate

Publishing The ROTARIAN with a monthly circulation over 360,000 and handling over a million and a half pieces of incoming and outgoing mail annually . . . are only a few of the many activities carried on in this handsome new building.

Modern year round air conditioning here, automatically controlled by Powers helps maintain efficiency and output of employees at a high level. Prevention of OVER-heating in winter and OVER-cooling in summer also provides greater fuel savings and more economical operation.

Powers air conditioning control began almost 50 years ago in the Congress Hotel Gold Room in Chicago. Experience gained there and in thousands of other prominent buildings is now available to you.



(c36)

THE POWERS REGULATOR CO.

SKOKIE, ILLINOIS

Offices in chief cities in U.S.A., Canada and Mexico

Established 1891

Automatic Temperature and Humidity Control

Sinclair uses Day-Brite lighting . . .

The new 10-story Sinclair Oil Building in Chicago is completely lighted with Day-Brite glass-enclosed recessed Troffers — nearly 4,000 of them! Their over-all performance fully justifies the confidence of Architects Holabird & Root & Burgee.

As is amply evidenced by the photographs, Day-Brite Troffers provide lighting at its best. Evident, too, is the fact that Day-Brite Troffers are extremely flexible, both in terms of architectural design and in maintaining required illuminating intensities. They give employes high work-level visibility without eye strain. Can be quickly and economically installed in virtually any type ceiling—are easy and inexpensive to maintain.

SEE! EXAMINE! COMPARE! Many architects, before final decision, are making point-by-point and side-by-side lighting-fixture comparisons. More and more, they are choosing Day-Brite on the basis of their many superiorities.

CALL YOUR DAY-BRITE REPRESENTATIVE! He is thoroughly qualified to consult with you on any lighting problem.

Day-Brite Lighting, Inc., 5465 Bulwer Avenue, St. Louis 7, Missouri.

In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

5437

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures

Designed by Holabird & Root & Burgee

Installed by Fishbach, Moore & Morrisey, Inc., for John W. Galbreath & Co., Inc.

A STRIKING EXAMPLE of the over-all illuminating possibilities with Day-Brite Troffers in large areas is illustrated in this general office expanse in the Sinclair Oil Building. Note the uniformity of desk-top illumination throughout.

gets "see-ability" plus design

THE DIGNIFIED EFFECT and comfortable illumination in Sinclair executive offices are typified by this view. The fixtures are unobtrusive, harmonious in design and completely functional.

THIS CONFERENCE ROOM again illustrates the flexibility of Day-Brite Troffer placement. Note especially the ample illumination provided throughout the room area by placing fixtures parallel to the narrow dimension.

ADEQUATE LIGHTING is certainly an essential "tool" in any drafting room. Here again, the versatility of Day-Brite Troffers is apparent—placement of the fixture runs provides a most satisfactory degree of visibility on the boards.

For Greater Strength Uniform Thickness and Color

FILON

The First Fiberglas and Nylon Reinforced Plastic Panel Ever Produced

FILON Gives You Greater Strength

After many months of research, FILON is now produced with Fiberglas and Nylon strands for greater strength and uniformity. Actual tests show that an 8 oz. per sq. ft. FILON panel can support over 200 lb. load per sq. ft. on a 4 ft. unsupported span. (U. S. Navy standards are only 100 lbs. per sq. ft.)

FILON is Uniform in Thickness and Color

FILON'S automatic, electronically controlled process eliminates weak spots and provides even impregnation and dispersion of color pigments. This method also makes possible continuous lengths, as well as all standard sizes. Lengths are limited only by convenience in handling.

Write for our New A.I.A. Brochure

. . . shows many interior and exterior applications for FILON panels in residential and industrial fields. This handy brochure is filled with informative construction details and technical specification data.

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AE ROUNDUP

(*Continued from page 208*)

BOOKS, BROCHURES

• *Applied Solar Energy Research*, edited by E. J. Burda. (Stanford Research Institute, Stanford, Calif.) 300 pp. Available in cloth ($5.00) or paper ($4.00) binding from the Association for Applied Solar Energy, Suite 204, Mayer-Heard Bldg., Phoenix, Ariz. A directory of world activities related to solar energy utilization and a bibliography.

• *Circular No. 1 on the Symposium on Winter Concreting — Theory and Practice.* (The Danish National Institute of Building Research, Copenhagen, Denmark). Background on symposium to be held in Copenhagen in February 1956. Information can be obtained from the Organizing Secretary, RILEM Symposium 1956, % The Danish National Institute of Building Research, 20, Borgergade, Copenhagen K, Denmark.

• *Acoustical Factors in Architectural Design*, by T. D. Northwood. Technical Paper #23, Div. of Building Research (National Research Council, Ottawa, Canada). 10¢. What is being done and can be done to effect solutions to the problem of separating a noisy area from an adjacent quiet one.

• *The Economics of Livability Cooling and Heating in Hot Climates*, by Dean W. R. Woolrich of the College of Engineering, University of Texas. (Bureau of Engineering Research, The University of Texas, Austin, Tex.) 6 pp. Planning for human comfort in hot-dry and hot-humid climates, stressing high energy output of humans living in climatic comfort.

• *Lightweight Concrete*, by W. H. Taylor. (Division of Building Research, Melbourne, Australia). Manufacture, properties and uses of no-fines, lightweight aggregate and foamed concrete.

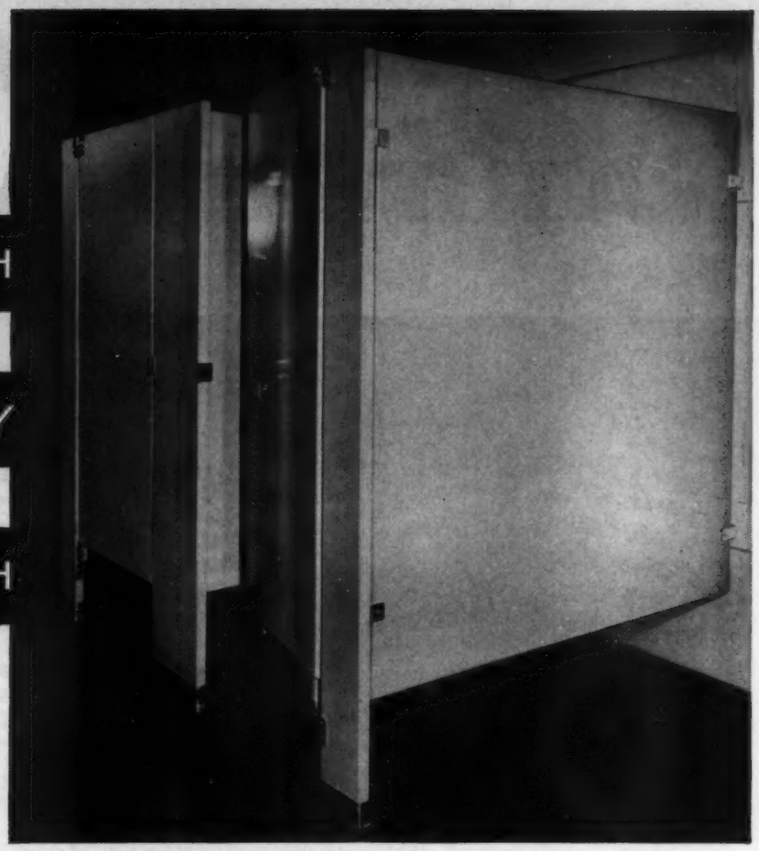
HEATING-COOLING COUNCIL

• *The Better Heating-Cooling Council* to promote the use of hot water and steam heating systems in residential construction has been formed to represent four manufacturers' associations in the heating field: the Institute of Boiler and Radiator Manufacturers, the Steel Boiler Institute, the Gas Appliance Manufacturers Association and the Convector Manufacturers Association. The Council will be located at 608 Fifth Ave., New York City. Paul K. Addams, president of the Fitzgibbons Boiler Co., is the first president.

STRENGTH

DURABILITY

FINISH



Nicholson Type A Toilet Compartment. Floor-braced. Four other types available in any of ten colors.

Nicholson Metal Partitions—

built to stand up . . . built to stand out

Toilet compartments may sometimes *look* alike—at first glance. But just check *details* and you'll see why Nicholsons' stand out. They don't merely meet specifications—they surpass them! The important Nicholson extras are what count.

- **Full 20 gauge, 1" thick panels and doors—1¼" 16 gauge pilasters.**
- **Full 18 gauge drawn moulding—won't bend or dent in shipment and installation.**
- **Tops in finish—zinc chromate primer over galvanized bonderized steel; two coats of synthetic baked enamel.**
- **Patented sanitary floor and ceiling pilaster supports.**
- **Cast brass, chrome over nickel, hardware. Positive, unbreakable, adjustable gravity hinge—cam an integral part of barrel. Modern design in every detail.**
- **Individually packed panels—carton can be used as protective cover after installation.**

Specify the compartments that will still stand out—after years of rugged use. Specify Nicholson.

• *Available in the following types—and wide selection of colors*
Type A—floor braced • Type AC—ceiling hung • Type AR—overhead braced • Type B—flush type • Type BP—panel type

NICHOLSON

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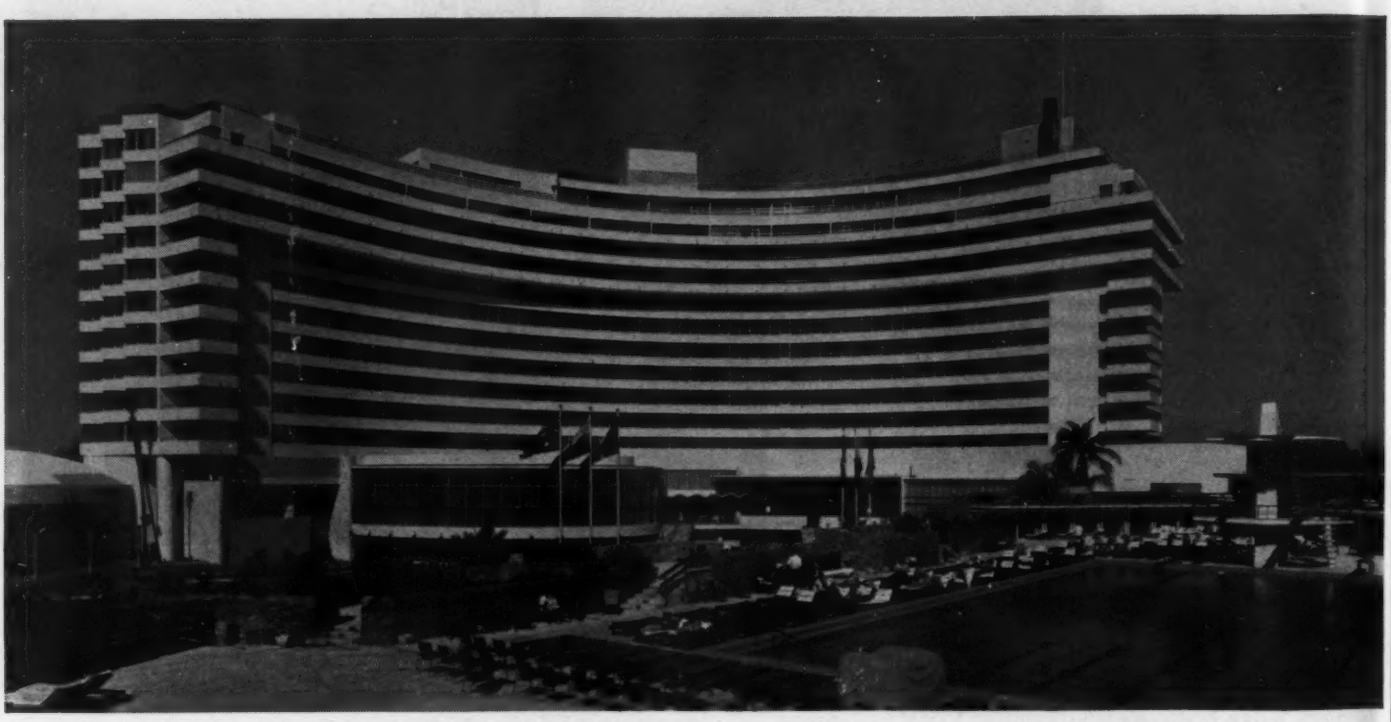
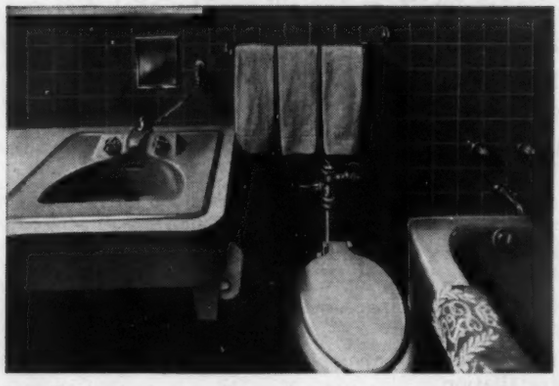
CRANE FIXTURES AT THE FABULOUS



Situated on 14 acres, once the site of the renowned Firestone Estate, Hotel Fontainebleau is called the world's largest and finest resort hotel. It has 565 guest rooms, 265 cabanas, two swimming pools. Architect: Morris Lapidus, Miami Beach and New York. General Contractor: Taylor Construction Co., Miami Beach. Mechanical Contractor: Markowitz Bros., Inc., Miami.



Smaller baths feature Crane Marcia lavatory set into counter-top, Crane Troy water closet, Crane Criterion tub. Counter-top curves under mirror wall out of the picture to the right.

Solarium includes Crane Sitz Bath of Duraclay (resists thermal shock), Crane Norwich lavatory. Crane Hydrotherapeutic Shower and marble control table not illustrated.

CRANE

IN EVERY ROOM FONTAINEBLEAU

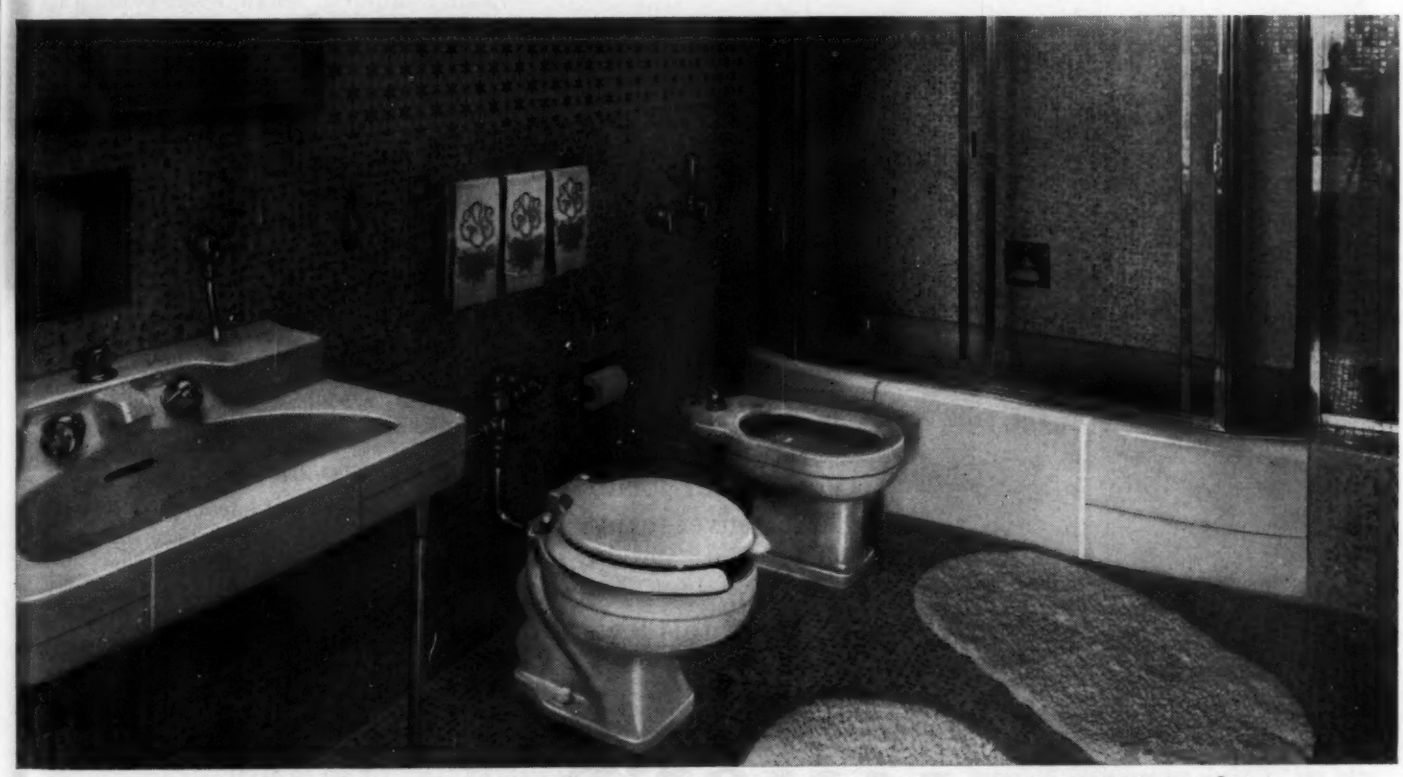
They set out to build the most fantastically luxurious hotel in the world—and they did. The fabulous *Fontainebleau* in Miami Beach.

And the Fontainebleau has Crane—the preferred plumbing fixtures throughout.

Because only Crane fixtures could come up to the standards of luxury the Fontainebleau's architect set . . . in color, in styling and in reputation for perfection.

Whether or not you are trying to set a record for luxury in the job that's on your boards right now, you will find that Crane fixtures fit into your plans perfectly, and afford your client a bonus of quality, style and maintenance-free operation you could give him no other way.

Why not check your local Crane Branch or Crane Wholesaler before you start writing your specifications?



Deluxe bathrooms feature Crane Drexel lavatory with Temple Trim, Crane Troy water closet, 5'6" Criterion tub. Many of the bathrooms, like the one above, are equipped with a Crane Bidet. Bathrooms are in yellow, blue and pink.

CRANE CO.
General Offices: 836 S. Michigan Ave., Chicago 5, Ill.
VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE STARTS ITS SECOND CENTURY OF QUALITY
Founded July 4, 1855

Confident steps...

where 40 steel diamonds grip every foot

Men and rolling equipment move safely—without danger of slipping—over economical SUPER-DIAMOND floor plate. Every single diamond —40 of them to a step—guards constantly against skids and slips.

Easy to fabricate and install, this non-directional pattern rolled-steel floor plate provides low-cost safety and rugged durability. SUPER-DIAMOND floor plate won't trap dirt—cleans and drains quickly—gives many years of dependable safety under the heaviest industrial loads.

Mail the coupon below for information on this low-cost, long-lasting rolled-steel floor plate.

A.W. SUPER-DIAMOND ROLLED STEEL FLOOR PLATE

"The diamond in the rough . . . a gem of a flooring."

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Other products: A.W. ALGRIP Abrasive Rolled Steel Floor Plate—Plates—Sheets —Strip—(Alloy and Special Grades)

For plants where oil, water and grease raise special problems of slipping accidents, we suggest a check on the special qualities of A.W. ALGRIP . . . the world's only abrasive rolled steel flooring.

AE PRODUCTS

(Continued from page 197)

WOOD SURFACES

Pen-Chrome Wood Stains

Surfaces: Interior woodwork, new or old. Also wood floors
Colors: 13 different stains
Features: Penetrating stains
Mfr: The O'Brien Corp., South Bend, Ind.

Deft Wood Finish

Surfaces: Interior wood
Features: Seals, primes and finishes in two coats. Dries in 30 min
Mfr: Desmond Bros. Paint Co., 1826 West 54th St., Los Angeles 62, Calif.

Lumber Life Wood Finish

Surfaces: Exterior wood
Colors: Redwood, brown wood, clear gloss and clear flat
Features: Pigmented, permanent stains. Resistant to fungi, mildew, moisture. Controls warping, splintering, bleaching
Mfr: McCloskey Varnish Co., 7600 State Rd., Philadelphia, Pa.

Thompson's Redwood Stain

Surfaces: Exterior and interior wood
Colors: Redwood
Features: Water repellent. Weather resistant
Mfr: E. A. Thompson Co., Inc., 1355 Market St., San Francisco, Calif.

Varna-Plate Varnish

Surfaces: Exterior and interior wood
Features: Good for wood surfaces exposed to hard wear, weather, abrasion or scratching. Non-toxic, non-inflammable and impervious to sunlight. Dries to touch in 20 min. Has no melting point. Resistant to heat, water, chemicals, solvents, salts, flaking, chipping, peeling
Mfr: Spearhead Boiler Plug & Specialty Co., 704 Woodland Ave., Cleveland 15, Ohio.

EXTERIOR MASONRY SURFACES

Arcopel Masonry Paint

Surfaces: Exterior masonry. Also uncoated interior walls
Colors: 9 colors and white
Features: Rubberized paint. Self-priming. Good hiding power. Repels moisture. Resists alkalies
Mfr: The Arco Co., 7301 Bessemer Ave., Cleveland 27, Ohio.

(Continued on page 220)

Fulton, Krinsky and Dela Motte
— Architects and Engineers

stage lighting controls system

by FA

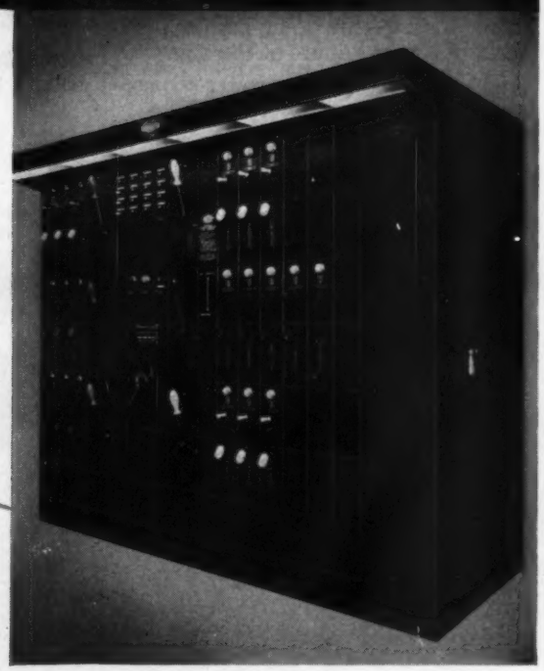
Stage Lighting Control Systems by FA are a popular feature of more than 500 theaters, high school and college auditoriums in this country and elsewhere.

That's because FA Stage Lighting Controls add tremendously to the color, beauty and enjoyment of these structures.

The result of more than 50 years experience and know how, FA Stage Lighting Controls embody the latest features in design and construction.

Built on the unit basis, FA Stage Lighting Controls can be made to fit any type of auditorium or theater. All are approved by the Underwriters' Laboratories, Inc., for label service and will give long lasting and trouble free service.

Include an FA Stage Lighting Control System in all school, college or other auditorium you are called upon to design. For further details contact your nearest FA representative listed in Sweet's.



FA Stage Lighting Control Board installed in Parma, Ohio School.

Illustrative of the wide range of control systems produced by FA are the following:

CONTROL BOARDS for Manual Control, Modified Pre-Set Remote Control, Multiple Pre-Set Remote Control, Motor Driven Control, Electronic Tube Control, Mobile Color Lighting Control.

DIMMING CONTROL EQUIPMENT—
Resistor Type, Auto-Transformer Type, Electronic Reactor Type.

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Solve 3 basic heating-of modern school design with 1

New Trane KB Unit Ventilator (1) stops wall-of-glass downdrafts, (2) provides even distribution of heat and ventilation air, (3) gives quick warm-up in the morning*

In modern classrooms, TRANE KB Unit Ventilators stop chilling downdrafts before they start—and make walls of glass practical!

They utilize *Kinetic Barrier* action—tempered air under constant pressure, rising from *wall-to-wall extensions*. The Kinetic Barrier operates constantly, whether the unit is heating, ventilating or cooling—providing *positive* protection—every minute of the day.

And, despite longer, narrower rooms, lower ceilings, the TRANE Kinetic Barrier provides uniform ventilation, because tempered fresh air is introduced across the *entire length* of outside wall or window. Room air is set in motion in a perfect flow pattern that eliminates cold spots, stale stuffy corners. Morning warm-up is speedy and sure, without excessive fuel cost or overheating.

Thus *three* basic comfort problems are solved by *one* TRANE unit—and, in addition, the *Kinetic Barrier* provides continuous defrosting action to keep windows clear on coldest days.

You want beauty with your comfort, too, and TRANE'S decorator styling offers a choice of six cabinet colors, six color-keyed linoleum tops, optional matching shelving.

Want the full details and available sizes? Contact your nearest TRANE Sales Office or write TRANE, La Crosse, Wis.

**Kinetic Barrier*

ventilating problems
Trane Unit!

TRANE

MANUFACTURING ENGINEERS

One source, one responsibility for:
Air Conditioning • Heating • Ventilating
Heat Transfer Equipment

The Trane Company, La Crosse, Wis. • Eastern Mfg. Div., Scranton, Pa. • Trane Co. of Canada, Ltd., Toronto • 90 U.S. and 17 Canadian Offices.

Specify matched TRANE products for all school heating and ventilating needs

In Stairways TRANE Convectors combine beauty with efficiency, fit where other types of heating units won't.

In Entryways TRANE Force-Flo Heaters greet youngsters with warm welcome . . . blanket doors with heat to block cold air.

In Swimming Pools TRANE Wall-Fin surrounds occupants with warmth, stops drafts. (TRANE Torridors add tempered ventilation.)

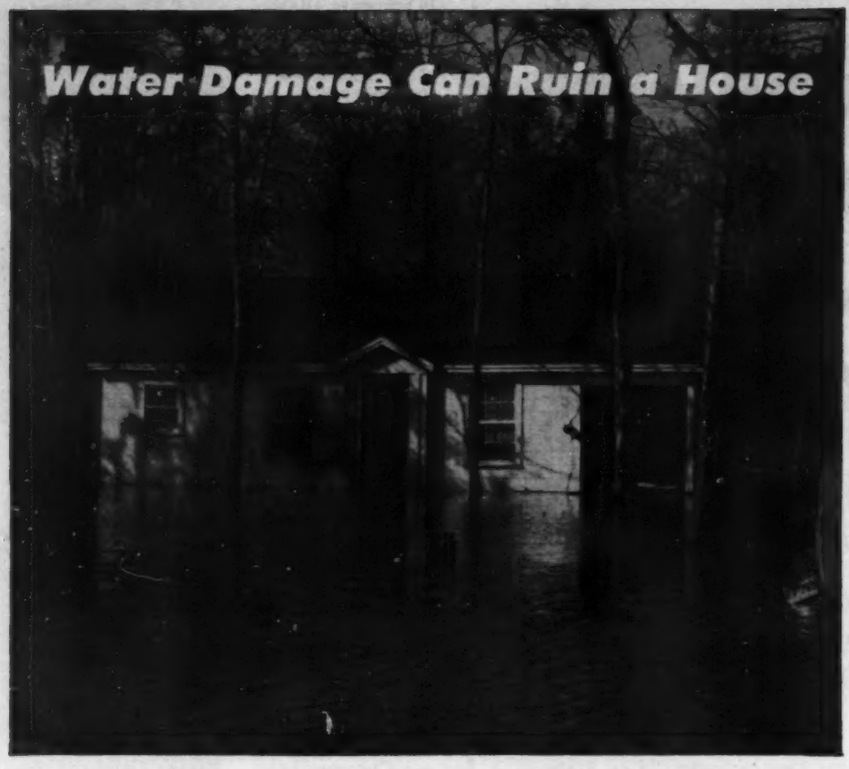
In Offices, wherever year-around air conditioning is desired, TRANE Climate Changers heat or cool, ventilate, dehumidify, filter.

In Locker Rooms TRANE Torridors bring in fresh, warm outside air, blend it with room air. Keep locker rooms free of odors.

In Auditoriums TRANE Volume Ventilators blend outdoor air with inside room air, warm and distribute it silently.

In Gymnasiums TRANE Unit Heaters with exclusive diffusers put heat where you want it, spread warmth evenly over large areas.

In Hallways TRANE Wall Line Convectors serve long wall and window runs, blending with the beauty of modern buildings.

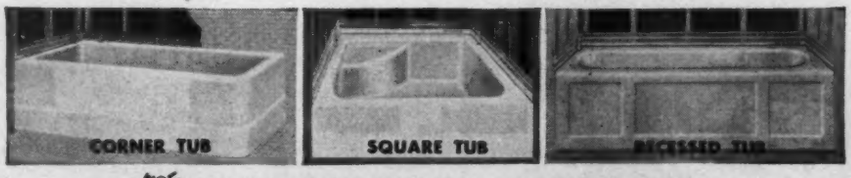


Assure Customer Satisfaction with LUCKE Leakproof TUB HANGERS!

The most expensive room in the house, per square foot, can easily become a nuisance unless tub to wall and tub to floor junctions are permanently waterproofed. It's so easy to take care of a minor detail (that could become a major error) when LUCKE Leakproof Tub Hangers are specified. Take a quick look at the other satisfying advantages of LUCKE Tub Hangers. All the new Statler Hotel bathtub installations are being safeguarded with LUCKE Leakproof Tub Hangers.

1. Seals rim permanently against water seepage.
2. Tub is easily levelled with Lucke Tub Hangers.
3. Equal support on all studs . . . eliminates strains . . . prevents sagging.
4. Perforations on upper part of hanger form base for wall material.
5. No unsightly cracks occur at tub rim to harbor dirt, grease and germs.

Excellent for masonry and all types of wall construction.



THE LUCKE LEAKPROOF TUB HANGER

See your wholesaler. Write for complete information.

WILLIAM B. LUCKE, INC.
WILMETTE, ILLINOIS

AE PRODUCTS

(*Continued from page 216*)

Silicone Dri-Film 103 Water Repellent
Surfaces: Exterior masonry
Features: Minimizes efflorescence. Retards spalling and cracking
Mfr: General Electric Co., Silicone Products Dept., Pittsfield, Mass.

Lox-Seal Silicone Water Repellent
Surfaces: Exterior masonry
Colors: Colorless
Features: Prevents efflorescence. Repels snow, rain, ice. Formulated with Dow Corning silicones and HD-139. Seals hairline cracks
Mfr: Crown Chemicals Co., Inc., 6625 Avondale Ave., Chicago 31, Ill.

Dam-Tite Immediate
Surfaces: Exterior masonry
Colors: Colorless
Features: Attains full water repellency 1 hr after application. Prevents oxidation, exterior chipping, cracking and frost damage
Mfr: Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.

Cementhide Rubberized Masonry Paint
Surfaces: Exterior masonry
Colors: 8 colors and white, flat
Features: Fast-drying. Polyvinyl acetate water-emulsion paint. No primer required. Water-resistant
Mfr: Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Spred Glide-On
Surfaces: Exterior masonry surfaces
Colors: 12 colors
Features: Vinyl latex paint. Dries to the touch within 30 min. Resistant to fading, staining, peeling, mildew, alkalies, acids, oils, grease, salt, weather
Mfr: The Glidden Co., Cleveland, Ohio.

Tamms Vinyl Plastic Base Paint
Surfaces: Exterior masonry. Also interior masonry
Colors: 6 colors and white
Features: Water emulsion paint. No primer necessary. Dries to the touch in 10 min. Resists water and weather, salt water, acid air and industrial fumes
Mfr: Tamms Industries, Inc., 228 No. LaSalle St., Chicago 1, Ill.

(*Continued on page 224*)

"HEAVYWEIGHT" PROTECTION WITH A LIGHTWEIGHT METAL

ALODIZED ALUMINUM ROOFING

No. 3 in a series on protective finishes for architectural aluminum.

Photograph by courtesy of Loomroof Corporation of America, Pittsburgh 23, Pennsylvania.

WHAT ALODIZING IS . . . . . AND WHY YOU SHOULD SPECIFY IT.

"Alodizing" is a process using the ACP chemical "Alodine" that converts the aluminum surface to a continuous non-metallic layer. It adds years to the metal's resistance to corrosion, and provides a perfect bond for paint, lacquer, vitreous enamel and adhesives.

One type of "Alodine" protects aluminum yet preserves the original appearance of the metal; another produces a sun-fast stable green that ranges from a grey-green iridescence to the deep patina appearance of weathered copper; still another produces an iridescent brown.

All types reduce glare and reflectivity. All add to aluminum's usefulness and durability, particularly at the seaside, in industrial areas, and in-contact with mortar.

IF IT'S ALUMINUM, BE SURE IT'S ALODIZED

A few of the many typical building products that should be Alodized: Roofing, Siding, Shingles, Gutters, Spouting, Jalousies, Screens, Hardware, Awnings, Blinds, Wall Tile, Sash and Door Frames, Curtain Wall Panels, Partitions, Heat and Vent Ducts, Trim, Cabinets, Refrigerating and Air Conditioning Equipment, Furniture, Light Fixtures.

For further information on Alodized aluminum, and other applications of the "Alodine" finish, write or call.

Alodine Trademark Reg. U. S. Pat. Off.

Since 1914, Pioneering Research and Development in Metal Protection

AMERICAN CHEMICAL PAINT COMPANY
Ambler, Pa.

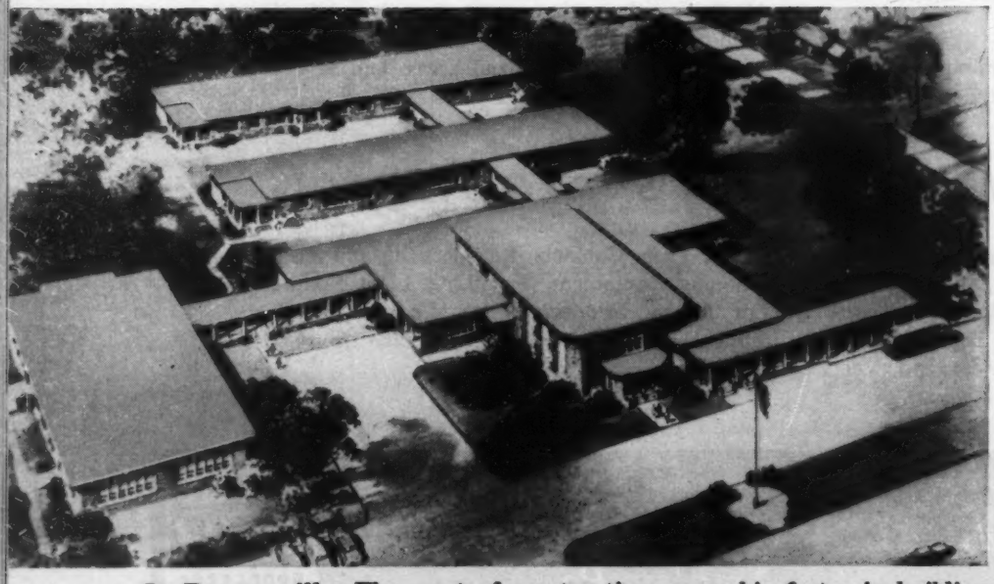
CHEMICALS ACP PROCESSES

In Pittsburgh, Pa., the economy and labor saving features of Steeltex resulted in a decision to use Steeltex in the Roberts Elementary School in Penn Township. Architect: Joseph Hoover, A.I.A., Pittsburgh. Contractor: Branna Construction Corp., Pittsburgh.

Faster Construction At Lower Cost Makes STEELTEX® A Natural For New Schools

Construction is started on 20 new schools every working day in the year somewhere in the United States. Yet we can't keep up with the demands for more schools.

We will be 176,000 classrooms short of our needs by 1965 even at the present building rate. School officials trying to cope with this situation face a tough financing problem. Because it's hard for them to get the money they need to build new schools, they must get the greatest possible value for every dollar they spend.



In Brownsville, Fla., cost of construction was a big factor in building junior high school. Steeltex helped stretch construction dollars. Architect: Frank Sindelar, A.I.A., Pensacola, Fla. Contractor: E. M. Hall Construction Co., Pensacola.

Pressure is on architects and contractors to use better materials which provide savings and speed construction of well-designed, sturdily-built schools. That's one big reason why more and more Pittsburgh Steeltex is being used for reinforcing in floors and roofs—it provides a better construction job faster and at lower cost.

Steeltex, the wire mesh lath which carries its own form right on its back, was the choice of architects and contractors for the representative new schools pictured on these pages. These jobs are typical of large and small public and parochial schools in all parts of the country which are being built with Steeltex because it helps answer the all-important question: "How can we make the best possible use of the limited funds available?"

The men responsible for designing and building these school buildings have this to say about Steeltex:

In Ann Arbor, Mich., a new $6.5 million high school used Steeltex for about 300,000 square feet of floors and roof decks. Architect: Fulton, Krinsky & Dela Motte, Cleveland, Ohio. Contractor: Sorensen-Gross Construction Co., Flint, Mich.

In Okauchee, Wisc., good design and sturdy construction were the keynotes of the St. Joan of Arc School. Steeltex went into all floors. Architect: Brust & Brust, Milwaukee. Contractor: Oliver Construction Co., Oconomowoc, Wisc.

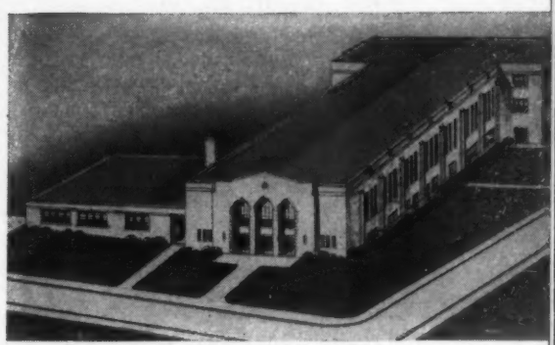
Architect: "Steeltex gets credit for contributing to a very low construction cost—$1 per cubic foot. Construction with Steeltex is faster, easier, without leak-through; the slab is stronger and the weight distribution is more even. Use of Steeltex helped us meet the budget requirements of our client. It is an ideal form for concrete floors and suspended decks."

Contractor: "We used Steeltex because it is low in cost, is easy to handle and provides strong floors which can be built faster. Steeltex cut our floor construction costs by approximately 20 per cent. It is economical to install, makes forms unnecessary, and is readily available. The water resistant backing on Pittsburgh Steeltex holds the water in the concrete and prevents drip, maintaining the proper ratio of the mix and permitting the concrete to cure uniformly."

School Board Official: "We conferred with our architect and contractor and learned that Steeltex would reduce the cost of our school substantially if we used Steeltex instead of a more costly type of steel flooring. We were still able to maintain exacting high standards which we had originally established. We changed our plans and used Steeltex to take advantage of this real saving. Steeltex was a bargain for us."

Wherever the construction dollar must be stretched without sacrificing quality construction, Steeltex can help. If your plans call for construction of a school or any other project with poured concrete floors, roofs, plaster walls or ceilings, or Portland cement (Stucco) exteriors, there is a special type of Pittsburgh Steeltex that can do a better job for you faster at lower cost.

Steeltex offers you the same advantages enjoyed by the designers and builders of the schools pictured here. Call the nearest district sales office to learn how you can do a better job faster with Steeltex. Or you can write to Pittsburgh Steel Products Co. for a free copy of the Steeltex book.



In Cheltenham, Pa., near Philadelphia, speed of installation and economy made Steeltex a good choice for the St. Joseph School and Church. Architect: Gleeson and Mulrooney, Philadelphia. Contractor: James J. Clearkin Co., Philadelphia.

Send for your copy of "Pittsburgh Steeltex—Backbone Of Concrete, Plaster, Mortar."

STEELTEX®

a product of

Pittsburgh Steel Products Company

a subsidiary of

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DISTRICT SALES OFFICES: Atlanta • Chicago • Cleveland • Columbus • Dallas • Dayton • Detroit • Houston Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Tulsa • Warren, Ohio. **PLANTS:** Monessen, Pa. • Allenport, Pa. • Akron • Los Angeles • Unionville, Conn. • Warren, Ohio • Worcester, Mass.

A/E PRODUCTS

(*Continued from page 220*)

Hydropake Masonry Coating

Surfaces: Exterior and interior masonry
Colors: Variety of colors, white and gray
Features: Cement-type paint. Resistant to moisture, chalking, blistering, peeling
Mfr: The Upco Co., 4805 Lexington Ave., Cleveland 3, Ohio.

Masonry Coating

Surfaces: Exterior masonry, new or old
Features: Bakelite vinyl resin base. Resistant to moisture, oil, grease, chipping, peeling
Mfr: Plastic Coating Corp., P. O. Box 13127, Houston 19, Tex.

Valastic House Masonry Paint

Surfaces: Exterior masonry. Also wood
Colors: 10 colors
Features: Resistant to mildew and water, alkalies, stains and fading
Mfr: The Valspar Corp., Philadelphia, Pa.

OTHER MASONRY SURFACES

Pliotone Masonry Coating

Surfaces: All masonry surfaces, including hot plaster
Colors: 9 colors, non-fading
Features: Goodyear synthetic rubber base. Resistant to water, mildew, chemicals, cracking, chipping and peeling. Dries rapidly
Mfr: Preco Chemical Corp., 84 County Court Rd., New Hyde Park, N. Y.

"Easy One Coat" Masonry Coating

Surfaces: Exterior and interior masonry
Colors: 8 colors
Features: Water-resistant
Mfr: Truscon Laboratories, Detroit, Mich.

Waterfoil Water-Repellent Paint

Surfaces: Basement concrete walls. Other concrete surfaces
Features: Controls water seepage
Mfr: A. C. Horn Div., Sun Chemical Corp., Long Island City, N. Y.

Coprox Water-Repellent Paint

Surfaces: Any porous masonry surface
Colors: Gray, green, rose, buff, white
Features: Copperized cement compound. Prevents water seepage
Mfr: S. J. Clark Co., Wethersfield, Conn.

INTERIOR SURFACES

Spec Latex Flat Paint

Surfaces: Most interior surfaces
Colors: Fadeproof colors
Features: Dries in 30 min. Requires no primer. Moisture-resistant
Mfr: Baltimore Paint and Color Works, Baltimore, Md.

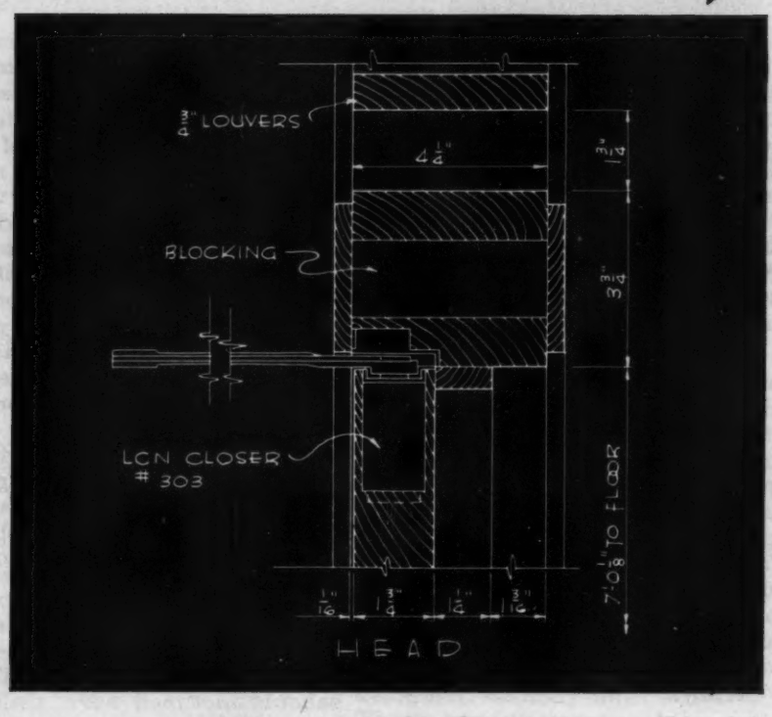
Duo-Tex Fire-Retardant Paint

Surfaces: Interior surfaces, especially acoustical tile and low-cost wallboard
Colors: 12 pastel colors
Features: Swells and chars on contact with flame or excessive heat to provide insulating blanket over surface. Resistant to mildew, fungus, cracking, crazing, chalking, blistering. Washable. Durable
Mfr: The Glidden Co., Cleveland, Ohio.

Sapolin Para-Hue Paint

Surfaces: Interior walls
Colors: 32 decorator colors
Features: Rubber latex paint. Dries to the touch in 20 min.
Mfr: Sapolin Paints Inc., 229 East 42d St., New York 17, N. Y.

(*Continued on page 228*)



CONSTRUCTION DETAILS

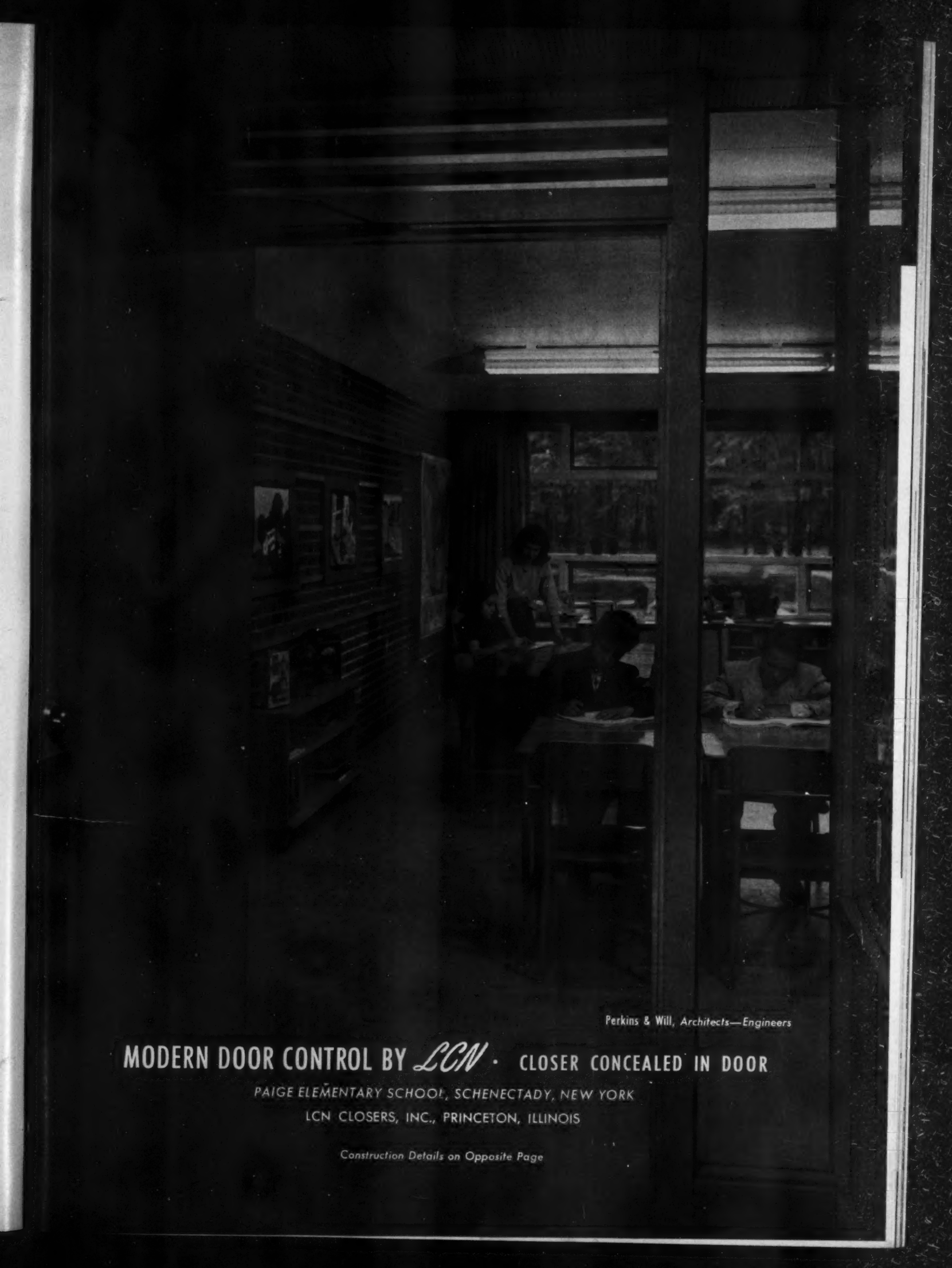
for LCN Closer Concealed-in-Door, Shown on Opposite Page

The LCN Series 302-303 Closer's Main Points:

1. An ideal closer for many interior wood doors
2. Mechanism concealed within door; flat arm not prominent, and provides high closing power
3. Door is hung on regular butts
4. Closer is simple to install and to adjust
5. Used with wood doors; wood or metal frames
6. Practically concealed control at little more than exposed closer cost

Complete Catalog on Request—No Obligation
or See Sweet's 1955, Sec. 17e/L

LCN CLOSERS, INC., PRINCETON, ILLINOIS



Perkins & Will, *Architects—Engineers*

MODERN DOOR CONTROL BY *LCN* · CLOSER CONCEALED IN DOOR

PAIGE ELEMENTARY SCHOOL, SCHENECTADY, NEW YORK

LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

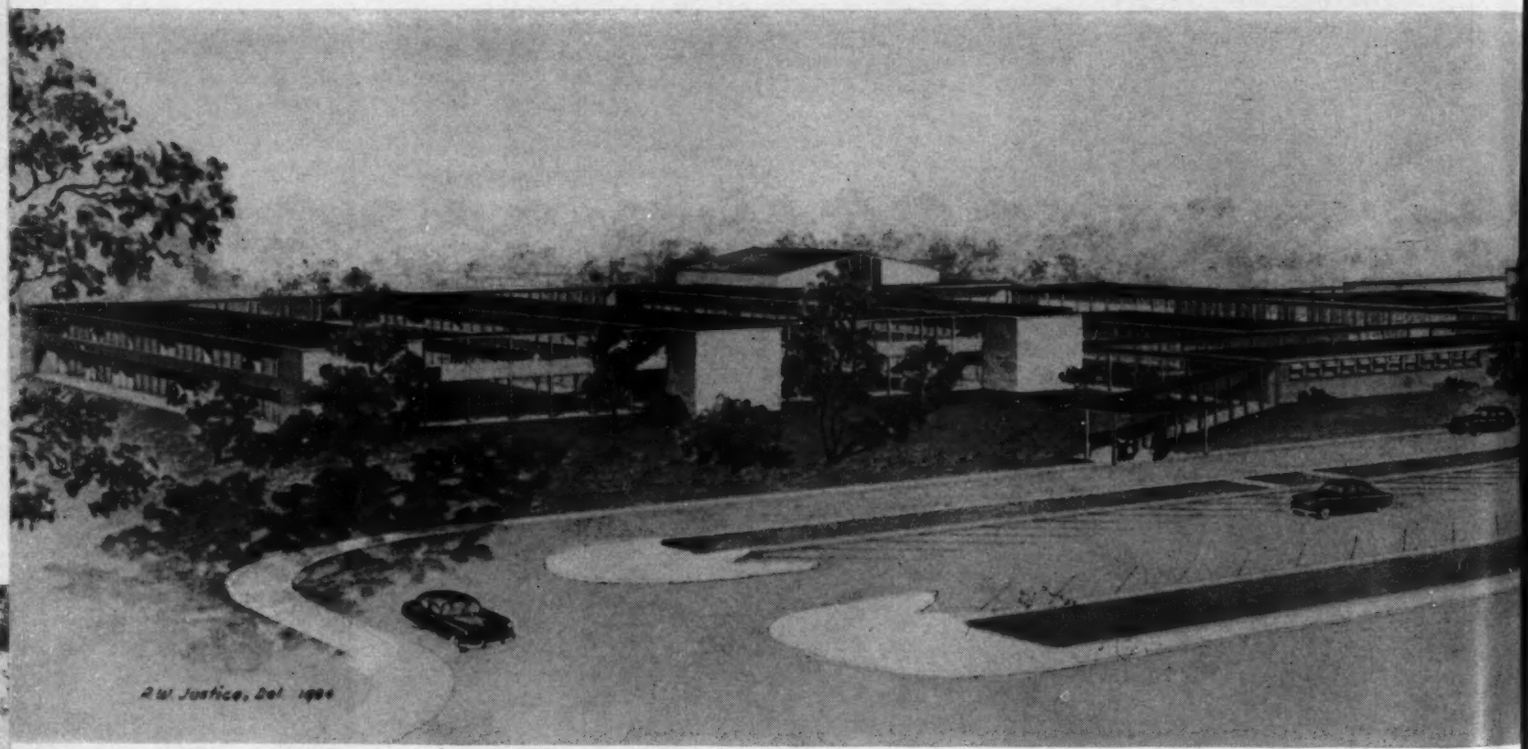
WOLMANIZED

Reg. U.S. Pat. Off.

PRESSURE-TREATED

LUMBER

gives new Gainesville High School built-in protection



Architect's sketch of new high school at Gainesville, Florida.

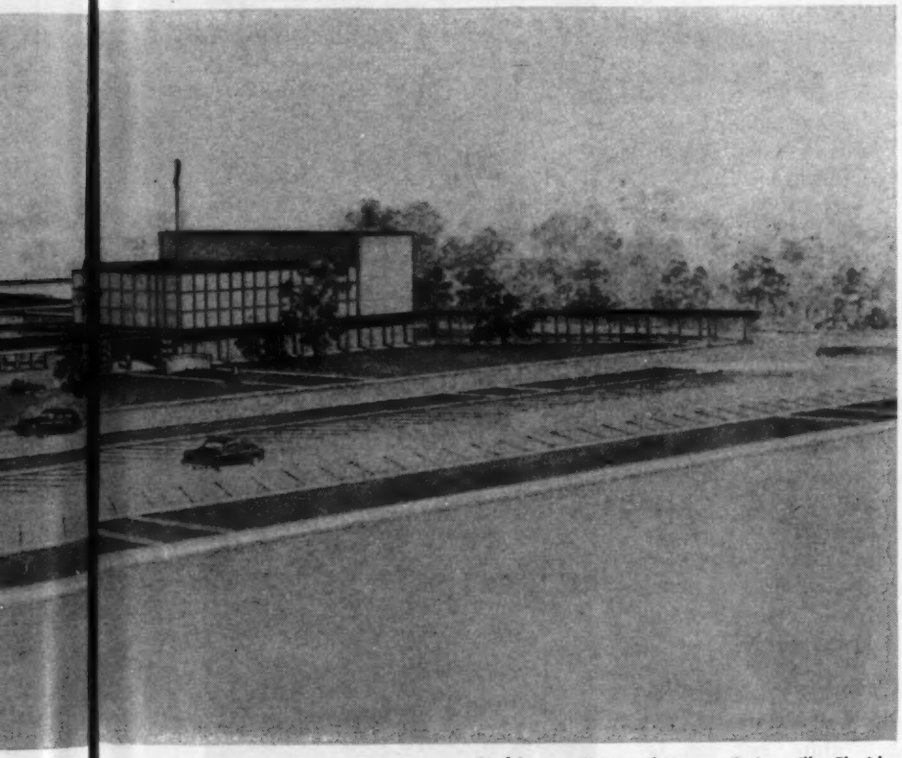
IN THE GYMNASIUM:
Wolmanized lumber, which is rot and termite resistant, was specified exclusively for the Gymnasium sub-flooring, furring and joists.

IN THE AUDITORIUM:
Carpenters at work on construction of Auditorium, where all sub-flooring is Wolmanized lumber.

IN SPECIALTY ROOMS:
Wolmanized lumber is used in the intricate construction put up for storage space in the Corrective Gym Room.

IN DRESSING ROOMS:
Architectural Inspector checking an effective use of Wolmanized lumber in framing for a three-way mirror.

against rot and termites



Architects: **Goin and Moore, Gainesville, Florida.**
General Contractor: **Kenneth H. Smith, Daytona Beach, Florida.**
Lumber Sub-Contractor: **J. K. Shirah, Daytona Beach, Florida.**

FLORIDA'S CLIMATE is kind to vacationists, but definitely *unkind* to wood. In this semi-tropical region, termites, rot and dampness all combine to sap the strength and shorten the life of untreated wood.

Architects know this, of course.

That is why Wolmanized lumber was specified for the new Gainesville High School, at Gainesville, Florida. Wolmanized *protected* lumber was specified for all framing and concealed woodwork . . . for the sub-flooring in the gymnasium and auditorium . . . even for the framework around the blackboards.

Wolmanized lumber lasts five times longer than untreated wood because it is *fully* protected against termites and rot by pressure treatment with Wolman® salts, a chemical preservative. Besides longer service life, Wolmanized lumber offers these important features . . .

CLEAN

ODORLESS

PAINTABLE

GLUEABLE

NON-CORROSIVE

FIBER-FIXED

In short, you sacrifice nothing when you specify Wolmanized pressure-treated lumber—you get the well-known advantages of wood, its low first cost, easy workability, availability and re-usability.

Wolmanized lumber is sold through wood preservers and lumber dealers throughout the country. Uniform high quality and fast delivery are assured. Write us for further information on Wolmanized pressure-treated lumber.

Be sure to specify

"Wolmanized"

KOPPERS COMPANY, INC.
Wolman Preservative Department, Pittsburgh 19, Pennsylvania

The Rite
SURFACE BOLT–
for any style door

#343—⅜" x 2" to 6".
#344—½" x 4" to 24".
#345—⅝" x 6" to 48".
All popular finishes.

These solid brass surface bolts are designed to harmonize with any style architecture. They are strong and simple to install. A most modern development is the new-type guides that allow for oval head screws—they are counter-sunk flush for a smooth, "non-knuckle-skinning" surface. Efficient—simple—strong.

a r

For Complete Information Write to
ADAMS-RITE
MANUFACTURING CO.
540 West Chevy Chase Drive
Glendale 4, Calif.

AE PRODUCTS

(*Continued from page 224*)

Gleem Miracle Plastic Flat Paint
Surfaces: Any type of interior surface
Colors: Decorator colors
Features: Vinyl finish. Dries in 30 min, washable in 48 hr. Uniformity over regular surfaces
Mfr: Baltimore Paint and Color Works, Baltimore, Md.

Wall Primer and Sealer
Surfaces: Most interior surfaces
Features: Polyvinyl acetate formulation. Foundation for conventional (not latex) flat paints and semi-gloss and gloss enamels. Good hiding power
Mfr: The Sherwin-Williams Co., Cleveland 1, Ohio.

Polyvinyl Primer-Sealer
Surfaces: Interior plaster and dry wall. Also exterior masonry and wood
Features: Dries in 3 hr. For use under alkyd finishes. Non-inflammable
Mfr: Luminall Paints Div., Natl. Chemical & Mfg. Co., Chicago 9, Ill.

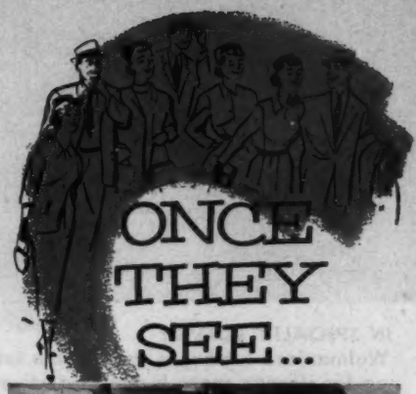
Textolite Texture, Textolite Ripple
Surfaces: Interior plaster and dry-wall
Colors: Decorator colors
Features: No primer required. Latex paints. Washable and quick-drying
Mfr: U. S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

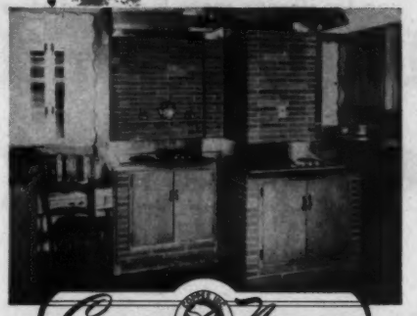
Colorage Alkyd Resin Paint
Surfaces: Walls, woodwork, ceilings
Colors: 5 General Electric "Mix or Match" semi-gloss colors
Features: Dry to exact colors of G-E "Mix or Match" program
Mfr: A. C. Horn Div., Sun Chemical Corp., Long Island City, N. Y.

Sapolin Dry Wall Primer-Sealer
Surfaces: All dry wall surfaces
Colors: Eggshell white, but can be tinted
Features: Vinyl plastic resin base. Forms base coat for all types of paint. Finish coat can be applied after 30 min
Mfr: Sapolin Paints Inc., 229 E. 42d St., New York 17, N. Y.

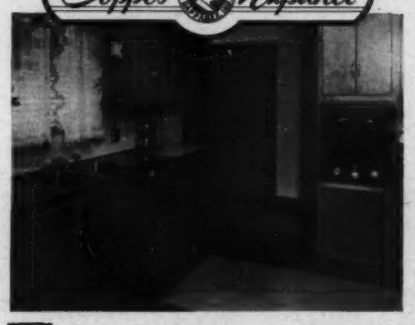
Arcotone Alkyd Flat Paint
Surfaces: All interior wall surfaces
Colors: "Optonic" blendable colors
Features: Dries in hours. Washable. Scuff- and scratch-resistant
Mfr: The Arco Co., 7301 Bessemer Ave., Cleveland 27, Ohio.

(*Continued on page 232*)

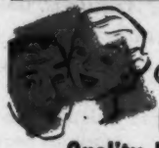




Coppes Napanee



They never want any other kitchen



or any other home!

Let America's finest Quality Kitchen sell for you!

Only Coppes Napanee gives your customers all four: Complete Custom Styling . . . Finest Hardwood Construction . . . Matchless Furniture Craftsmanship . . . and the Most Beautiful Natural Stains or Enamel Finishes.

Write for details to Dept. AR

COPPES, inc.
NAPPANEE, IND.

Photo by Hedrich-Blessing, Furniture by Heywood-Wakefield

Beautiful pegged oak floors aren't expensive now!

Only in appearance is this delightful floor expensive! Alternate 2¼" and 3¼" widths, beveled edges and walnut pegs give Bruce Ranch Plank Floor the beautiful decorative effect of costly random width plank. Yet the cost is only a few dollars per house more than plain strip floors. That's possible because it's pegged and finished at the factory and laid just like strip flooring. The informal beauty of Bruce Ranch Plank with its decorator-approved "Scratch Test" Finish is always in style . . . for modern or traditional homes. See our catalog in Sweet's. Write for color booklet.

E. L. BRUCE CO., MEMPHIS 1, TENN.

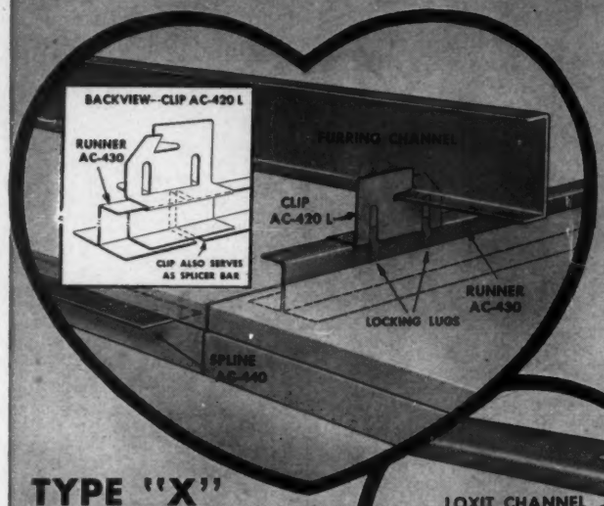
BRUCE

Bruce Ranch Plank Floor

Naturally Beautiful!

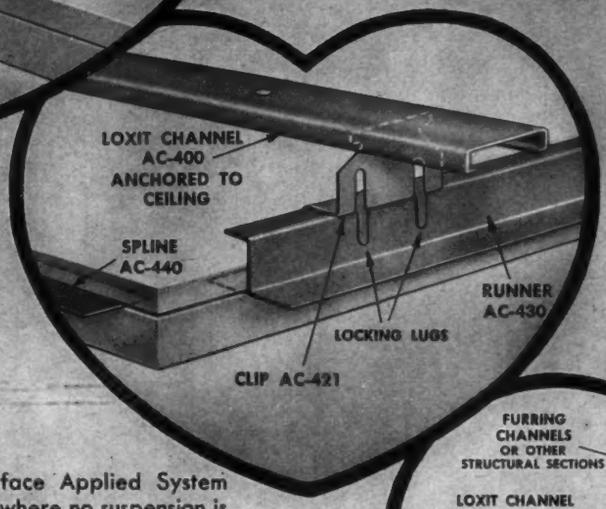
The Heart of the

LOXIT VICTORY ACOUSTICAL SYSTEM



TYPE "X"

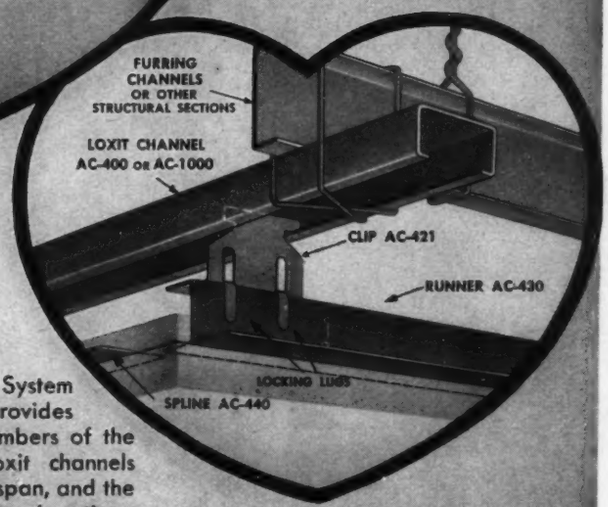
This Loxit Victory Regular Acoustical Suspension System was engineered to care for conditions where furring channels are being used as the supporting structural members for the suspension system. It is simple and easy to use.



The "XYZ" of Dependable Acoustical Suspension Systems

TYPE "Y"

This Loxit Victory Surface Applied System meets those conditions where no suspension is involved, with the tiles being applied directly to the ceiling. Using Loxit channels AC-400 with Loxit clips AC-421, this type of installation becomes both simple and practical.



Consult your architect—his knowledge, training and experience can help you in many ways.

TYPE "Z"

This Loxit Victory Acoustical Suspension System combines Types "X" and "Y" and provides facilities for leveling the suspension members of the system by shimming between the Loxit channels AC-400 or AC-1000, depending on the span, and the furring channels, bar joists or other structural sections.

The new improved Loxit Victory Acoustical Suspension System, used individually or in combination, meets all acoustical tile-setting conditions and offers five important mechanical advantages. One clip cares for all sizes of furring channels, fitting the channel tightly because the groove of the clip and the locking lugs are both beveled. Clips AC-420 being right and left, and Clips AC-421 being reversible as well as the runners AC-430, right and left conditions are automatically provided for. Both AC-420 and AC-421 clips can be used as splices for runner AC-430, eliminating separate splicing clips. The supporting flanges of the runner AC-430 are single thicknesses of metal on *both* sides (same thickness as the splines), reducing the thickness of the kerf in the tiles to that of a single thin saw blade, automatically assuring proper alignment of the acoustical tiles and an anti-breathing seal.

Literature, samples and catalogs are available

LOXIT SYSTEMS, INC., 1217 W. WASHINGTON BLVD., CHICAGO 7, ILLINOIS

JENN-AIR—COMPLEMENT TO AN ARCHITECTURAL TRIUMPH—NORTHLAND SHOPPING CENTER

Architect: Victor D. Gruen, Associated Architects and Engineers, Inc., General Contractor: Bryant and Detwiler Co.; Consulting Engineer: H. E. Beyster and Associates, Inc.; Mechanical Contractor: Donald Miller Company

J. L. Hudson Company streamlined store serves as the focal point of Northland Center

Low Contour Exhausters meet functional and aesthetic demands... provide fresh air for comfort—blend with building design concept.

A blending of aesthetics and functional performance plus accent on customer comfort . . . that is a quick description of Northland Center, suburban Detroit.

Take ventilation. There was need for efficient movement of air . . . carrying off heat from ranges—presses—dryers—the fresh'ning of toilet areas. That was the functional aspect. But ventilators had to blend with the architectural concept, holding an uninterrupted sweep to roof lines. On all counts Jenn-Air Exhausters met the test:

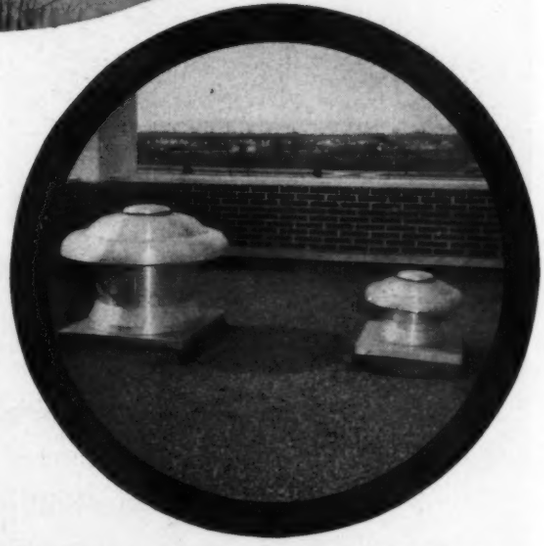
True low contour design that hugs the roof, complementing the modern architectural motif;

Efficient noiseless operation with full ball bearing grease packed motor guaranteed for 10 years uninterrupted service;

Easy installation—bolted directly to the roof—no louvres or unsightly penthouse necessary;

Made of ageless aluminum—built to outlast any structure.

On your next building project consult Jenn-Air Ventilating Specialists in the pre-planning stage.



Here is a typical installation of two Low Contour Jenn-Air Exhausters on the roof of J. L. Hudson Co. Store in Northland Center. The Large Unit Model 161-CR is connected to five canopies over steam presses. The small Exhauster, Model 90-CR, carries away heat from dryers.

JENN-AIR PRODUCTS COMPANY, INC.

Architects & Builders Building • Indianapolis 4, Indiana

AIA PRODUCTS

(*Continued from page 228*)

Marble-Base Latex-Alkyd Paint
Surfaces: Interior aggregate block
Features: Fills and spreads easily in one application. Washable finish
Mfr: Luminall Paints Div., National Chemical & Mfg. Co., 3617 So. May St., Chicago 9, Ill.

METAL SURFACES

Corro-Vent Anti-Corrosive Paint
Surfaces: Structural metals
Colors: Variety of high gloss colors
Features: Dries to touch in 30 min. Resistant to acids, alkalies, alcohol, water, salt, grease and dirt. Doesn't crack, chip, peel, blister. Non-conductive and insulating
Mfr: Corro-Vent Inc., 510 Mercantile Library Bldg., 414 Walnut St., Cincinnati, Ohio.

Thick-Coat Resin Coating
Surfaces: Metal surfaces. Also concrete and wood
Colors: White, green, slate gray, black
Features: Protects new or corroded metals and other surfaces exposed to fumes, corrosive chemical atmospheres, acids, alkalies
Mfr: Pennsylvania Salt Mfg. Co., Corrosion Engineering Dept., 1000 Widener Bldg., Philadelphia 7, Pa.

Denflex Plastisol Metal Coatings
Surfaces: Steel, copper, brass, aluminum, galvanized iron
Colors: Gloss and colors supplied as desired
Features: Resistant to weathering, abrasion and corrosion. Good for electrical insulation
Mfr: Dennis Chemical Co., 2701 Papin St., St. Louis 3, Mo.

Nerva-Kote TNE
Surfaces: Metal surfaces. Also concrete
Features: Neoprene base coating. Waterproof. Resistant to abrasion, weathering, corrosive fumes, salt spray, alkalies, oils
Mfr: Rubber & Plastics Compound Co., Inc., 30 Rockefeller Plaza, New York 20, N. Y.

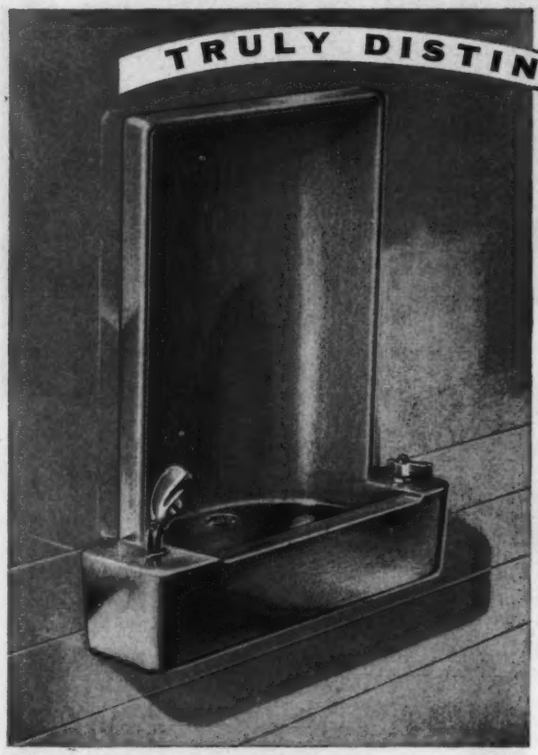
Nev-A-Rust Rust Inhibiting Paint
Surfaces: Any metal surface
Features: Dries in 6 to 8 hr. Protects against corrosive action of fumes and gases
Mfr: The Glidden Co., Cleveland, Ohio.

Neoprene W Protective Coating
Surfaces: Any metal surface
Features: Resistant to acids, alkalies, abrasion and weathering. Dries to the touch in 2 to 3 hr
Mfr: Carboline Co., 331 Thornton St., St. Louis 19, Mo.

Apco Neoprene Paint
Surfaces: Metal surfaces. Also wood and ceramic
Colors: Black, aluminum and colors
Features: Dries to the touch in 30 min. Resists corrosion from rust, moisture and chemical fumes. Flexible, resists shock
Mfr: Adhesive Products Corp., 1660 Boone Ave., New York 60, N. Y.

Rust-Tard Protective Paint
Surfaces: Any metal surface
Color: Finished aluminum coat
Features: Protects against rust and corrosion
Mfr: The Garland Co., Cleveland 5, Ohio.

(*Continued on page 236*)

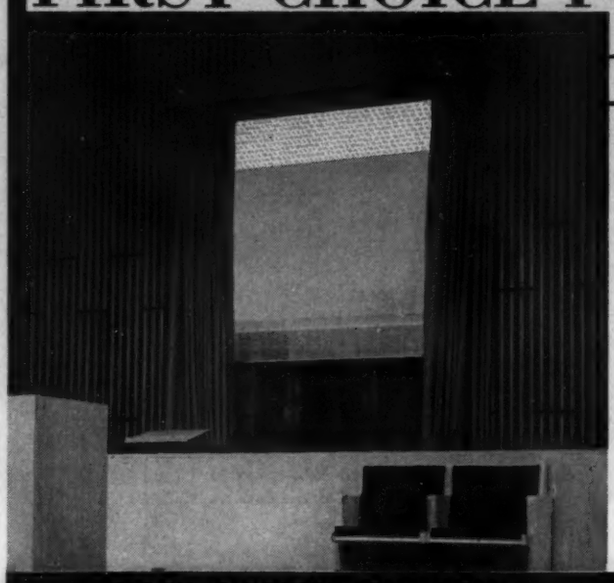


Smartly designed, extraordinarily convenient is this *entirely new* HAWS Semi-recessed Fountain that takes up little space in corridor or room and has drinking fountain head and operating lever handle accessibly located opposite one another on the top platform. An access panel in wall is NOT required for this fountain and all fittings are accessible from under bowl.

Write today for full details of this handsome fixture that will lend grace to your most exactingly designed public building, office building, school, hospital or restaurant.

HAWS DRINKING FAUCET CO.
1443 FOURTH STREET (Since 1909) BERKELEY 10, CALIFORNIA

FIRST CHOICE FOR CHURCHES...

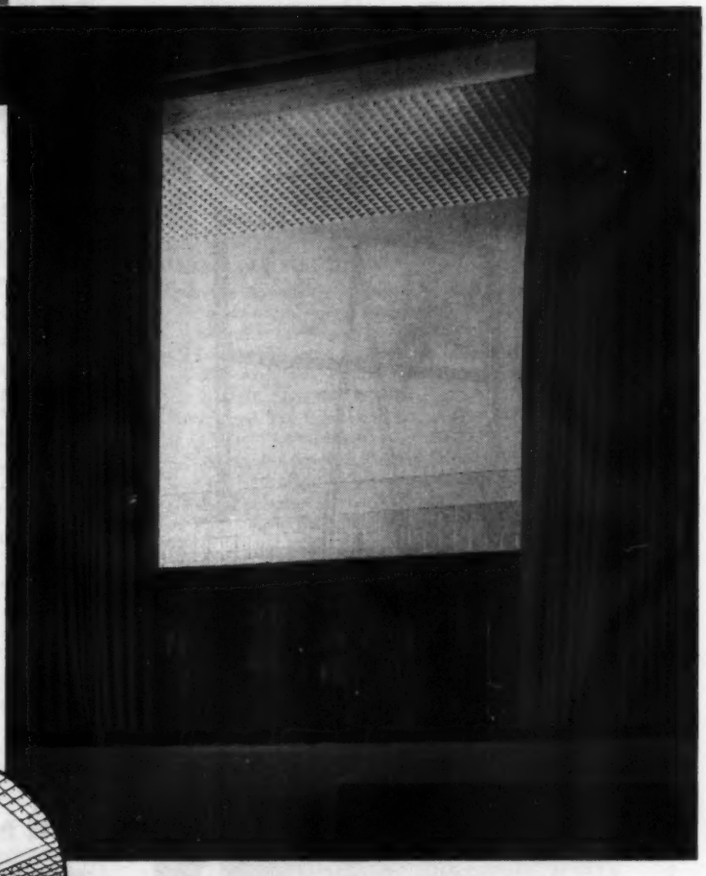


NEO-RAY
LOUVRED CEILING

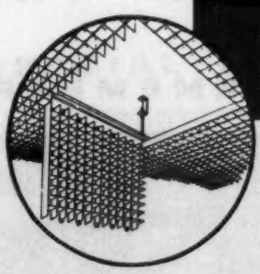
with Factory Prefabricated Alignment

Pat. No. 2,689,026

FIRST BAPTIST CHURCH
New Orleans, La.



The principal feature of this church, is the Baptistry located in the rear. The lighting problem: to highlight the subject being Baptized and at the same time keep the light from shining into the eyes of the congregation. The solution: NEO-RAY CU Louvred Ceiling... hinged sections, continuous unbroken louvred pattern in all directions. The light, reflecting on the green walls of the pool, resulted in a pleasing, sparkling soft pattern of aqua-marine. Reports from the pastor, the congregation, the architect and engineers all say, "another job well-done with NEO-RAY Lighting."

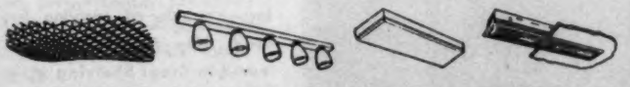


Send for NEW LOUVRED CEILING catalog No. 544

See our catalog in Sweet's Architectural File sec. 30a/NE

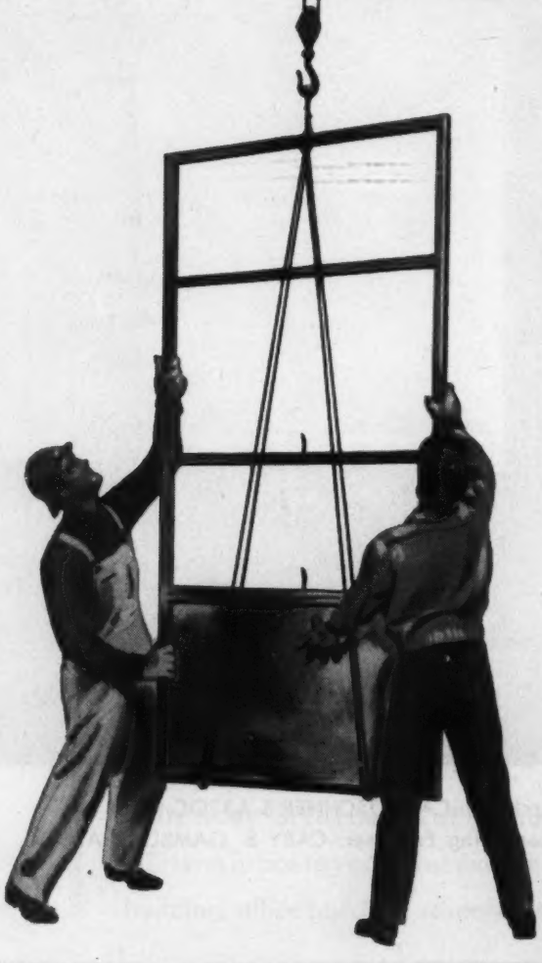
Architect: CARL OSCHNER & ASSOC.
Consulting Engineer: CARY B. GAMBLE & ASSOC.

MANUFACTURERS OF LIGHTING FIXTURES INCLUDING:



Louvred Ceilings • Roto-Strip • Luminette • Kleen-VU KVT Troffers

NEO-RAY PRODUCTS, Inc.
315 East 22nd St. • New York 10. N. Y.



TRUSCON VISION-APPLIES TO ALL

More new Vision-Vent applications are turning up daily!

Republic's Truscon Steel Division originally developed this complete *wall with window* for a group of hospitals. Immediately, designers and builders realized its economies and construction advantages. Now, all types of buildings are being designed around Vision-Vent.

In Vision-Vent Window Walls you get a building system with all the mass-production and installation economies of standardization.

Vision-Vent is designed to enclose entire walls. Each unit is complete, with fixed lights, ventilators, and insulated steel panels.

REPUBLIC

World's Widest Range of Standard

REMEMBER REPUBLIC FOR

NEW BUILDINGS NEED SUPPLIES; AND SUPPLIES NEED STEEL SHELVING for most efficient storage. Republic's Berger Division pioneered in the manufacture of high-quality steel shelving and in "storage engineering". Berger offers exclusive "Wedge-Lock"—world's strongest steel shelving—capable of carrying heaviest loads. New Berger Clip-Type Convertible Steel Shelving gives you fast, easy shelf adjustment.

VENT ECONOMY BUILDING TYPES

Panels can be either colored porcelain enamel or stainless steel. They have a "U" factor equivalent to that of masonry spandrel wall.

Since Vision-Vent offers a minimum wall thickness—less than 1½"—you gain extra floor space. Light weight is reflected in structural savings. Erection is done from inside and can average a floor-a-day rate. Vision-Vent is weathertight.

This exciting new Truscon development is recommended for all types of single and multi-story buildings. Truscon window engineers will be glad to study your requirements and develop specific design details and costs. See Sweet's File for more facts, or send coupon.

STEEL

Steels and Steel Products

Typical VISION-VENT applications

HOSPITALS

Memorial Hospital Ass'n. of Kentucky, Inc.
Sherlock, Smith and Adams, architects;
J. A. Jones Construction Co., contractors.

Memorial Hospital Ass'n. of Kentucky, Inc.
Office of York and Sawyer, Kiff, Colean, Voss and Souder, architects;
J. A. Jones Construction Co., contractors.

Memorial Hospital Ass'n. of Kentucky, Inc.
Isadore and Zachary Rosenfield, architects;
J. A. Jones Construction Co., contractors.

Hebrew Home for the Aged, Hartford, Conn.
Kane and Fairchild, architects;
South New England Construction Co., contractors.

Bel-Park Medical Bldg., Youngstown, Ohio
P. Arthur D'Orazio, architect;
Emanuel Katzman & Co., contractors.

SCHOOLS

Clemson College Dormitories
W. G. Lyles, Bissett, Carlisle and Wolf, architects;
Daniel Construction Co., Inc., contractors.

Holy Cross School and Convent, Bronx, N. Y.
Office of York and Sawyer, Kiff, Colean, Voss & Souder, architects;
James King & Son, Inc., contractors.

Animal Science Bldg., University of Arkansas
Ginocchio, Cromwell and Assoc., architects;
Harmon Construction Co., contractors.

Eastern Jr. High School, Greenwich, Conn.
J. Gordon Carr, architect;
Alfonso Alvarez, cons. school architect;
A. Barbaresi & Son, Inc., contractors.

Elementary School for Retarded Children, Columbus, Ohio.
Richard Hawley Cutting, architect;
Sever-Williams Co., contractors.

Classroom and Office Bldg., Univ. of California at Los Angeles.
Austin, Field & Fry, architects;
Robert E. McKee, contractors.

COMMERCIAL BUILDINGS

United Airlines Finance and Property Bldg., Chicago, Ill.
Skidmore, Owings and Merrill, architects;
Algot B. Larson, Inc., contractors.

Fram Office Building, East Providence, R. I.
The Architects Collaborative, architects; Gilbane Bldg. Co., contractors.

Michigan Bell Telephone Co., A.M.A. Office Bldg., Port Huron, Mich.
Smith, Hinchman & Grylls, Archts. & Engrs.;
E. J. Kahmann, contractors.

Penn Controls, Inc., Goshen, Ind.
The Austin Co., architects and contractors.

INDUSTRIAL BUILDINGS

Fermenter Room Bldg., Brown Forman Distillers Corp.
Joseph & Joseph, architects;
F. W. Owens Construction Co., contractors.

PUBLIC BUILDINGS

City Hall, Bakersfield, California
Robert N. Eddy, architect;
William T. Wheeler, engineer;
Brooks-Williams-Macco, contractors.

MORE BUILDING SPECIALTIES

NEW BUILDINGS MEAN PEOPLE; AND PEOPLE NEED STORAGE FACILITIES. Republic's Berger Division is world's leader in lockers. You can use Berger Steel Lockers wherever clothing is changed or stored. Trim and tidy locker rooms are great employee morale builders, too. Write Berger Division for assistance in planning, engineering, and installing complete locker systems.

REPUBLIC STEEL CORPORATION
3110 East 45th Street
Cleveland 27, Ohio

I'm interested in further details of Republic products checked:

☐ Truscon Vision-Vent Walls
☐ Berger Steel Shelving ☐ Berger Steel Lockers

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

K-8819-A

(*Continued from page 232*)

Lockprime Corrosion-Resistant Primer
Surfaces: Ferrous metals
Features: Effective in acidic and organic atmospheres
Mfr: Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa.

OTHER SURFACES

Siliconed Asbestolite
Surfaces: Roofs. Also concrete walls
Colors: Aluminum coating
Features: Aluminum flakes reflect 71 per cent of sun's heat. Reduces condensation by 60 to 70 per cent. Withstands extremes of heat and cold. Resistant to chemical vapors, gases, fumes, roof expansion and contraction, cracking, blistering
Mfr: The Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.

Pronto Acrylic Primer
Surfaces: Exterior and interior, especially dry wall
Features: Primer and finish coats can be applied in same day. Can be used under almost any type of finish coat. Resists alkalies
Mfr: 20th Century Paint & Varnish Corp., 456 Driggs Ave., Brooklyn 11, N. Y.

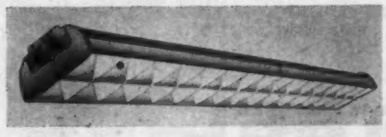
Albi Fire Retardant Paint
Surfaces: Any type of surface
Features: Requires only one coat. When exposed to fire, paint puffs up to thick mat that resists flame and insulates surface
Mfr: Albi Mfg. Co., Inc., 98 East Main St., Rockville, Conn.

Ceramiseal Protective Coating
Surfaces: Masonry and rough wood surfaces. Primer needed on painted or non-porous surfaces
Colors: Can be added if desired
Features: Ceramic-like compound in water emulsion. Resists fire. Repels water
Mfr: Roc-O-Lite Corp., 300 W. Washington St., Chicago 6, Ill.

Gel-Enamel White Eggshell
Surfaces: Interior wood, plaster, wallboard, masonry and metal
Colors: Can be tinted with P & L oils
Features: Alkyd enamel. Jelly-like consistency thins with stirring or brushing. Dries in 3 hr
Mfr: Pratt & Lambert, Inc., 3301 38th Ave., Long Island City 1, N. Y.

GENERAL PRODUCTS

SCHOOL LUMINAIRE

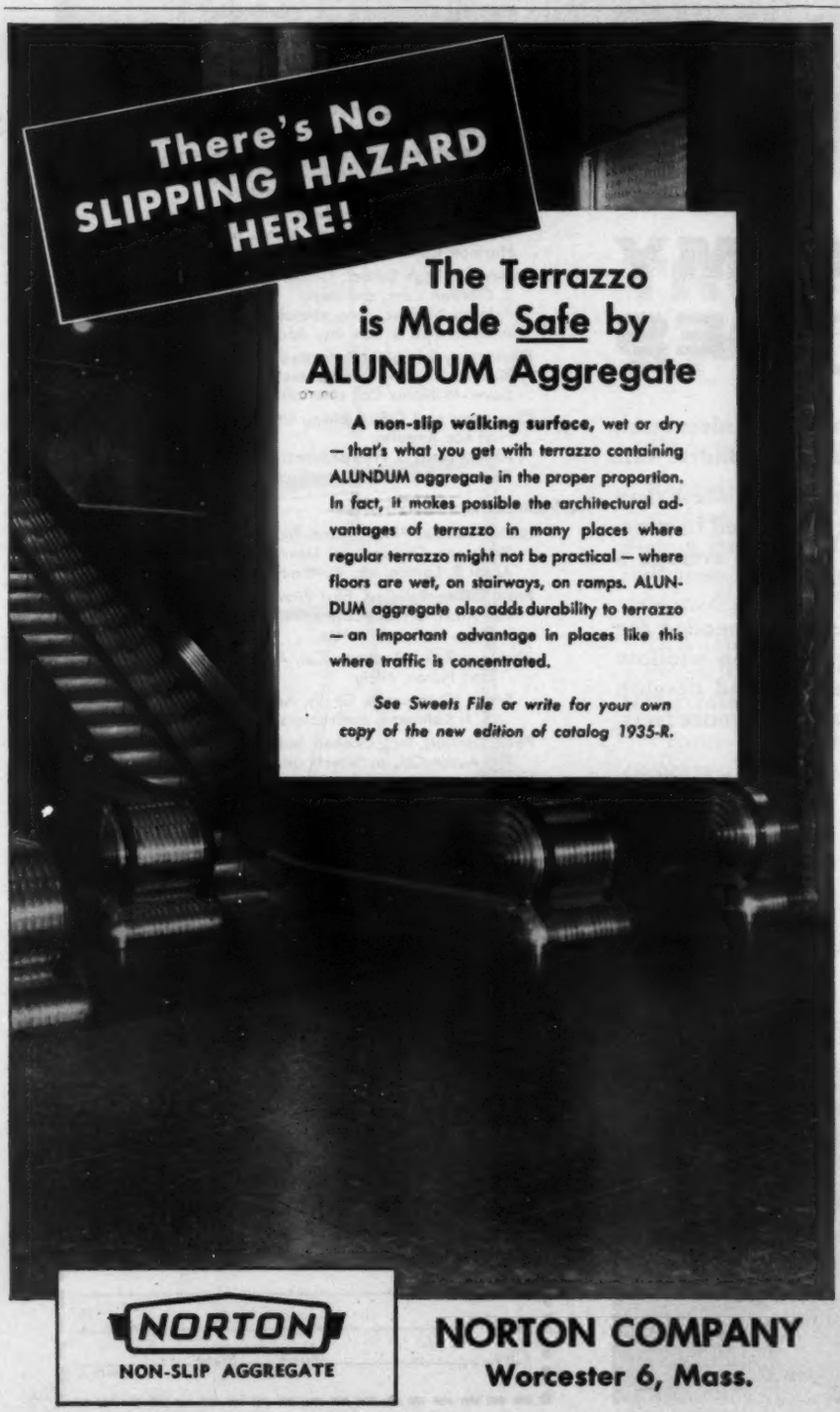


A *low-brightness school series of luminaires* gives light distribution of 89.3 per cent. Available in two 40-w T-17 60-in. lamps, two 40-w 48-in. lamps and two 96-in. 430 ma lamps, all units may be equipped with baffles when required. *Canning-Pekara, Inc., 2144 N. Wood St., Chicago 14, Ill.*

CORROSION CONTROL

A *hot spray vinyl*, which combines ease of handling and good spraying characteristics with optimum build and appearance, gives in one prime and one hot spray coat the 5- to 6-mil total thickness needed in most corrosion protection work. *Prufcoat Laboratories, Inc., 50 East 42nd St., New York 17, N. Y.*

(*Continued on page 240*)


There's No SLIPPING HAZARD HERE!
The Terrazzo is Made Safe by ALUNDUM Aggregate
A non-slip walking surface, wet or dry — that's what you get with terrazzo containing ALUNDUM aggregate in the proper proportion. In fact, it makes possible the architectural advantages of terrazzo in many places where regular terrazzo might not be practical — where floors are wet, on stairways, on ramps. ALUNDUM aggregate also adds durability to terrazzo — an important advantage in places like this where traffic is concentrated.
See Sweets File or write for your own copy of the new edition of catalog 1935-R.
NORTON
NON-SLIP AGGREGATE
NORTON COMPANY
Worcester 6, Mass.

New-Model **SINGER** *Combination Sewing and Cutting Table*

Saves Space

Specially designed to relieve the cramped conditions of many sewing classrooms, the new SINGER* Table actually fits more sewing machines into a limited space.

One Table provides full-sized SINGER* Machines for 2 students, work space for 2 more—and converts into one large cutting table! There's no need for individual machine cabinets—extra cutting tables.

These SINGER Tables make excellent use of space—make your classroom look much *bigger*, much *brighter*.

Saves Time

The machines drop down into the SINGER Table, and removable panels slip into place to provide a complete surface for pattern pinning and cutting.

There's no waiting for cutting *or* sewing space. No shifting and shuffling around. No confusion. In short, *no wasted time.*

Designed with the help of leading home economics supervisors, the new SINGER Table meets *every* sewing room need!

Has All These Advanced Features

- Two handy drawers—plus two deep openings to accommodate all standard tote trays.
- Drop leaf for extra space. (Second leaf available for other end if desired.)
- Built-in knee levers.
- All metal parts grounded.
- Safety switch—cuts off power automatically when machines are lowered into table.
- Dustproof shields—completely enclose machines when not in use.
- Tamper-proof locks on panels.
- Table available in beautiful blond or dark wood.
- Durable "Formica" top, choice of blond, dark or different colors.
- Size—60" x 42" x 30" with 18" drop leaf.

Special school discount

with any full-sized SINGER heads you prefer—Straight-Needle, Swing-Needle* or Slant-Needle.*

For free folder

—giving specifications of new SINGER Table and suggested classroom layouts, mail this coupon.

SINGER SEWING CENTERS

THERE'S ONE NEAR YOUR SCHOOL

SINGER SEWING MACHINE CO.
Educational Dept., 149 Broadway, N. Y. 6, N. Y.

Please send folder giving details about Combination Sewing and Cutting Table, and showing suggested classroom layouts.

Name_____

Position_____

School_____ County_____

Street_____

City_____ Zone_____ State_____

*A Trade-Mark of THE SINGER MANUFACTURING COMPANY.

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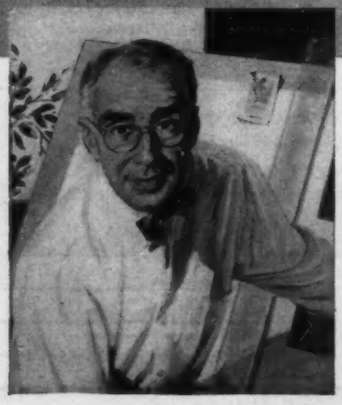
IT'S HERE! This remarkable new

Makes classrooms light and cheerful,

* 4 BRILLIANT NEW COLORS . . . Terra Cotta! Turquoise! Brown! Grey!
* NEW COMFORT-CONTOUR DESIGN heightens student attention!
* NEW BEAUTY AND DURABILITY with Hard Wood or Plastic work surfaces!

The Mobile Samsonite *Open Front Desk* gives maximum storage space! Forms related unit with matching Pivot-Back chair.

New Samsonite *Pivot-Back Chair* has silent, rubber-cushioned glides, kick-proof "spats". Pivot-back swivels *silently*, adjusts to individual body contours.



Design magic of *Russel Wright* only with Samsonite Classroom Furniture!

NEW CATALOGUE

New Samsonite Classroom Furniture Catalogue. Complete specifications on new Samsonite Classroom Furniture. Fully illustrated in color. Write Shwayder Bros., Dept. P-10, Classroom Furniture Division, Detroit 29, Mich. for a copy and for the name of your nearest distributor.

Classroom Furniture by Samsonite

students attentive and bright!

Created by Russel Wright and Samsonite ... never before has there been classroom furniture as exciting and practical as this!

4 Paint-Box Colors make classrooms bright and fun to work in! Tested on school officials in 30 states, the colors mix or match harmoniously, blend with every wall color!

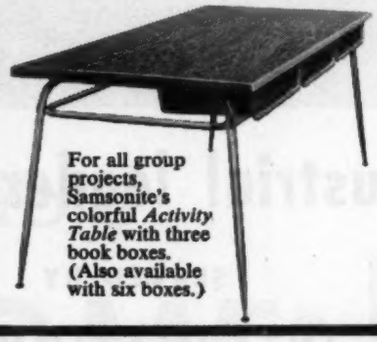
Shaped for Tomorrow! The gracefully curved contours are posture-designed to build healthy bodies, make attention less tiring, learning more fun!

Miracle of Mobility! Mix these units, move them room to room, with never a conflict in color or contour.

Mischief-Proof! Aluminum "spats" on legs defy kick and mop marks! Desk-lid hinges and countersunk "bumpers" can't be loosened, even with a screwdriver!

It's Not Expensive! Samsonite actually costs *less*... because it's strongest, lasts longest!

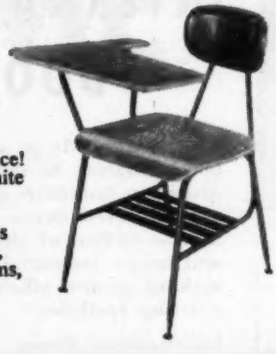
A new note in schoolroom furniture, Samsonite's *Circular Table* lends an informal, non-institutional look to the classroom!



For all group projects, Samsonite's colorful *Activity Table* with three book boxes. (Also available with six boxes.)

Samsonite's colorful *Lift-Lid Desk* is noiseless, slam-proof, tamper-proof. Fingers can't be caught between lid and book box.

Newness of line, brilliance of color, keynote Samsonite's *Teacher's Desk*. Maximum work and storage space!



290 square inches of writing surface! New Samsonite *Tablet Desk Chair* plays multiple roles in classroom, meeting rooms, lunchroom.

Samsonite *Student Desk* can also serve as table. Several can be pushed together for group projects.

New Samsonite *Trapezoid Table* adapts in groups to endless combinations for varied schoolroom activities.

New rolling contours in Samsonite's *Unit Chair!* Available with Samsonite's new *swivel back*. Back swivels to cradle every body movement!

Plenty of leg room and storage space! The Samsonite *Shelf Desk* brings modern color, graceful lines to the classroom.

Makers of the Famous Samsonite folding tables and chairs for every institutional use!

Samsonite ...the Classroom Furniture that's STRONGEST... LASTS LONGEST!

SHWAYDER BROS., INC., CLASSROOM FURNITURE DIVISION, DEPT. P-10, DETROIT 29, MICH. Also makers of famous Samsonite Luggage and Card Tables and Chairs for the Home.

This Coupon Brings Your Basic Planning Data on Doors for All Needs of Industry

INTERNATIONAL STEEL COMPANY
2051 Edgar Street, Evansville 7, Indiana

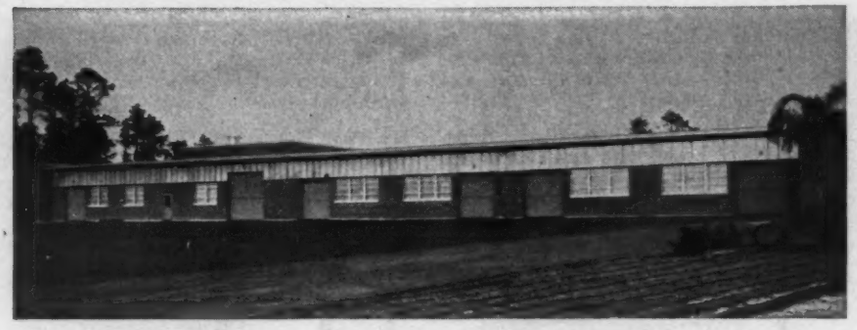
Send me without obligation my personal copy of the new "Doors for Industry":

NAME and POSITION _____

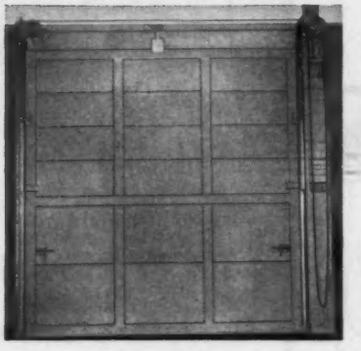
FIRM _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____



another industrial leader—



SERVED BY

INTERNATIONAL DOORS

Every year adds an ever-greater number of names to the growing list of American industries using International-Engineered doors — a list that is a cross-section of the small, medium, and major industrial firms constantly seeking greater efficiency in their expanding facilities.

International Doors
- — assure fast, easy operation plus permanent dependability
- — lower heat loss, minimize maintenance, promote savings and safety
- — increase efficient handling of materials and equipment to decrease costs

How well International engineers meet the growing demands to which doors for industry are put is best evidenced by the widespread installation of International doors in more and more structures.

Pictured above are typical installations of International Turnover Doors at training centers established by a major American industry.

Among the many leaders served by International Doors are:

GENERAL ELECTRIC CO.
BOEING • SERVEL, INC.
OHIO OIL CO. • LOCKHEED
GENERAL FOODS CORP.
THE TEXAS CO. • CESSNA
AMERICAN STEEL & WIRE CO.
INTERNATIONAL NICKEL CO., INC.

Mail coupon now for your new, complete International Doors Manual. Also, see Sweet's Architectural or Industrial Construction Files.

INTERNATIONAL SERVICE

2051 EDGAR STREET • EVANSVILLE 7, INDIANA

INTERNATIONAL STEEL COMPANY

AE PRODUCTS

(*Continued from page 236*)

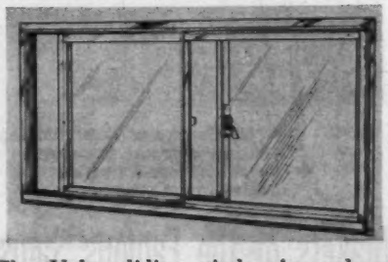
BIN LIGHT

A *reclangular bin-light* directs diffused light downward on each side of narrow aisles to illuminate bin or shelf interiors from top to bottom tiers. Available for 75–100 watt and 150 watt lamps, with either pendant, feed-through or outlet-box fittings. *Electro Silv-A-King Corp., 1535 S. Paulina, Chicago 8.*

INCANDESCENT LUMINAIRE

The *Paradome semi-direct incandescent luminaire* is a totally enclosed unit giving complete control of all light rays. A concave controlens at the bottom has the same effect as tilting a lens away from a viewer, while a fiber glass cover fitting on the upper dome produces a soft glow on the outer portion of the unit. *Holophane Co., Inc., 342 Madison Ave., New York 17.*

ALUMINUM SLIDING WINDOW



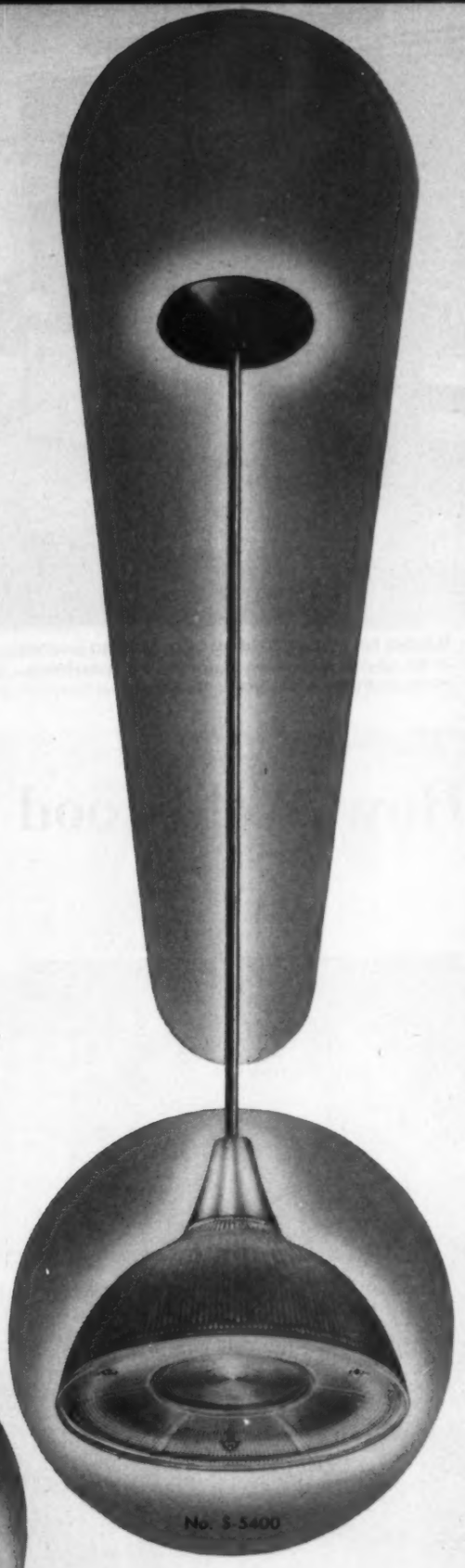
The *Ualco sliding window* is made of extruded aluminum with horizontal sliding sash. Stainless steel lock and keeper provide positive locking on movable sashes. *Southern Sash Sales Co., 818 20th St., Sheffield, Ala.*

(*Continued on page 244*)

new...

the most advanced achievement in fifty-seven years of lighting research . . . the incomparable

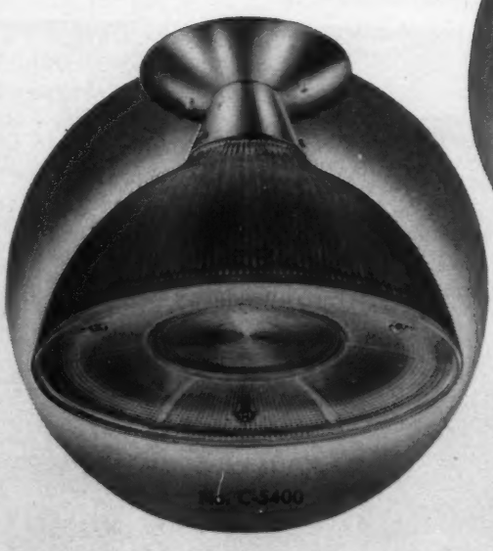
PARADOME*



The finest semi-direct lighting unit ever engineered for balanced-illumination in

CLASSROOMS, MODERN OFFICES, SHOPPING CENTERS, PUBLIC INSTITUTIONS . . .

Through an altogether new idea, using a concave circular CONTROLENS* and a new Prismatic Reflector enclosed in a special fiber-glass (FIBERGLO*) cover, an extraordinary control of light is achieved. Maximum illumination is directed to vital areas with the best visual comfort and lowest brightness. Paradome's graceful design conforms with all modern interiors—particularly today's classrooms.



Write for complete engineering data on Paradome. No obligation.

Lighting Authorities Since 1898

Holophane

For Better Lighting . . . Be Specific . . .

HOLOPHANE COMPANY, Inc. • 342 Madison Avenue, New York 17, N. Y.
The Holophane Co., Ltd., The Queensway, Toronto, Ont.

HOLOPHANE

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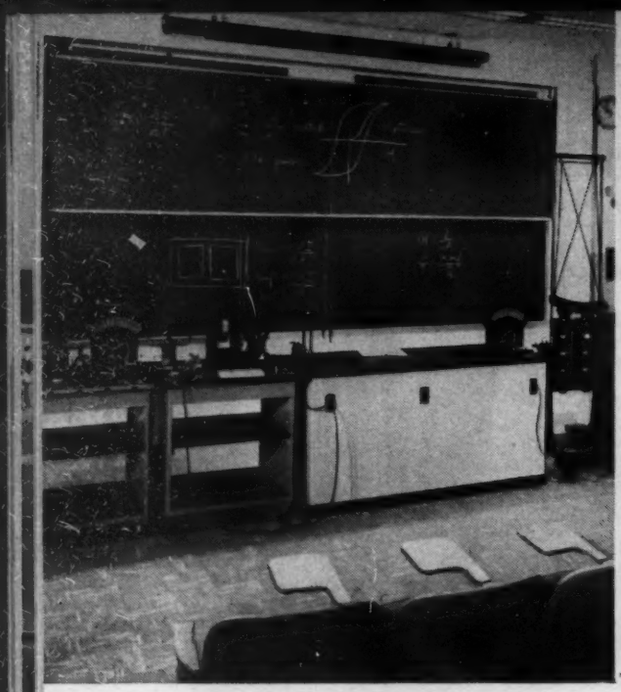
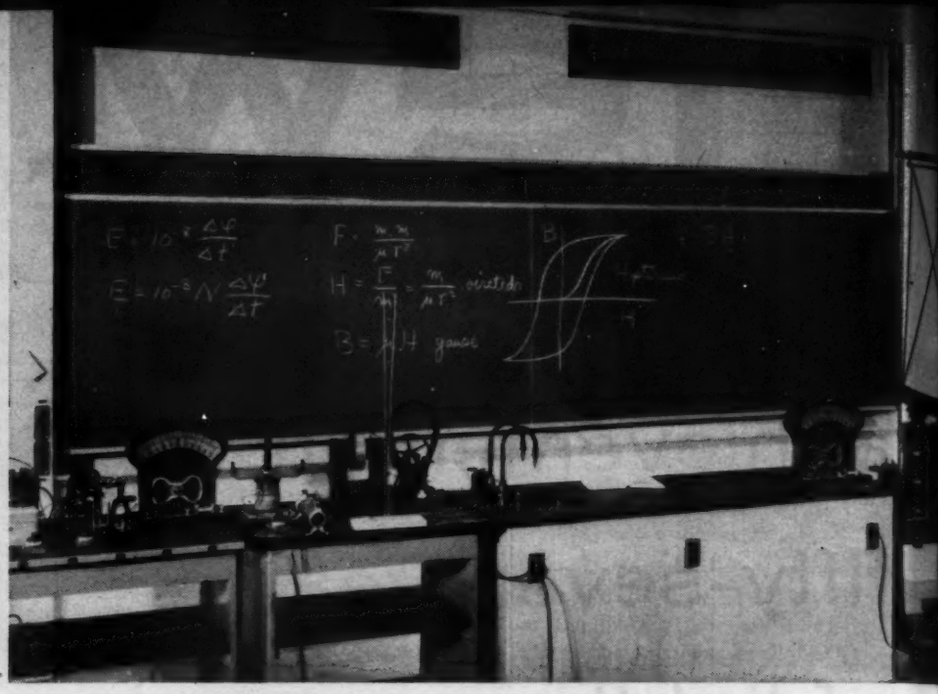


SLIDING DOUBLE WELDWOOD CHALKBOARD installed in the physics laboratory, University of Pennsylvania, moves on tracks, is electrically operated.



AT EXAM TIME quizzes are prepared on lower chalkboard and covered until needed. Another example of the versatility of Weldwood Chalkboard! Arch: James R. Edmunds, Jr. Installed by: A. M. Masters & Son.

How Weldwood helps you answer the challenge

BEAUTIFUL Weldwood birch paneling and built-in storage wall keys decorating scheme at Hillandale Elementary School, Montgomery County, Md. Arch: McLeod and Ferrara

INSTALLED COST of Weldwood Chalkboard is usually less than for ordinary chalkboard; it needs no costly fixed grounds or other surface preparation: it mounts directly to wall.

BUILT-IN storage cabinets of Weldwood birch keep classrooms neat, help get away from the old-fashioned "institutional" look. And maintenance costs almost nothing.

# of school design

School boards and building committees are looking for new ways to combine beauty and function, new ideas on saving space and lowering maintenance costs. And Weldwood school products can help...

Take Weldwood Chalkboard for example. It's a combination chalkboard, bulletin board and visual aid board. Its porcelain-on-steel* face attracts magnets for posting papers and visual aids, its glare-free green color is easy on young eyes, and chalk never "squeaks" on its velvety surface.

Weldwood Chalkboard never needs refinishing. It's composed of a porcelain-faced steel sheet bonded to strong, rigid plywood backed by a sheet of aluminum for balanced construction. It won't shatter, buckle, warp or break under impact, stress or temperature changes.

Beautiful Weldwood hardwoods for paneling and built-ins are another example. Real wood adds a warm and cheery note to classrooms, gyms, lounges and corridors. And it practically eliminates periodic redecoration since Weldwood needs only an occasional waxing to keep it looking new indefinitely.

You choose from world's fine woods like walnut; oak; birch; African, Philippine, and Honduras mahogany; cherry; Korina®; maple; and American elm. Exotic species such as Brazilian rosewood, teak, satinwood and zebrawood are also available on special order.

And Weldwood Fire Doors provide the utmost in fire protection. They come in Weldwood veneers to match paneling and are made with the exclusive Weldrok® mineral core patented† by Weldwood.

Guaranteed for life. All of these superior Weldwood products for schools are guaranteed for the life of the building in which they are installed.

For more details on Weldwood Chalkboard, paneling and doors send the coupon or visit any of the 87 United States Plywood Corporation showrooms in principal cities.

*Porcelain faces by The Bettinger Corp. †U.S. Patent No. 2,593,650

WELDWOOD FIRE DOORS are available in flush style or with light cut outs. Lake Hiawatha School, Troy Hills, N. Y. Arch: Emil A. Schmidlin.

Weldwood®

PRODUCTS FOR SCHOOLS

Made by

United States Plywood Corporation

World's Largest Plywood Organization

In Canada: Weldwood Plywood, Ltd., Montreal

United States Plywood Corporation
Weldwood Building 55 West 44th St., New York 36, N. Y.

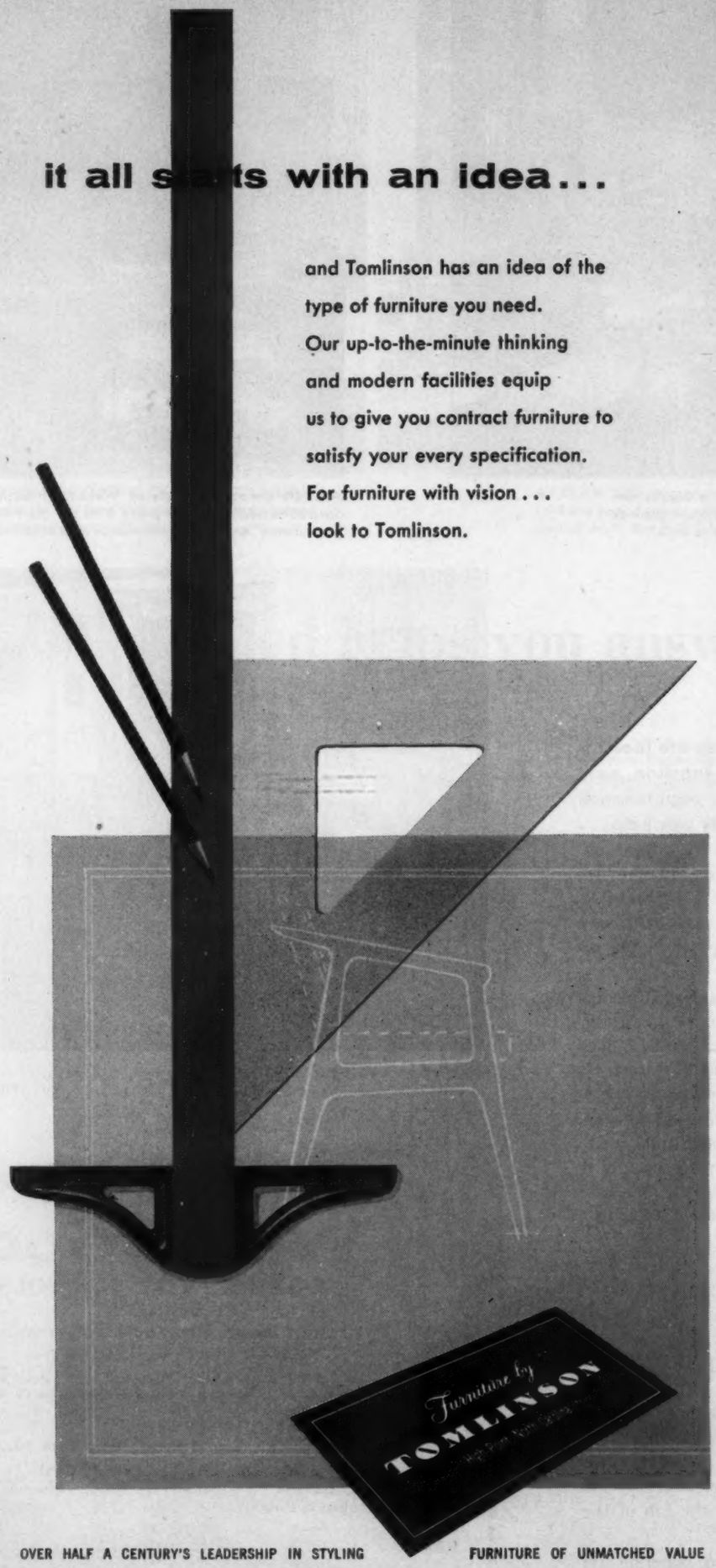
Please send me data sheets and installation details on Weldwood Chalkboard ( ) Weldwood Hardwood Plywoods ( ) and Weldwood Doors ( ). AR-7-5

NAME.....

COMPANY.....

ADDRESS.....

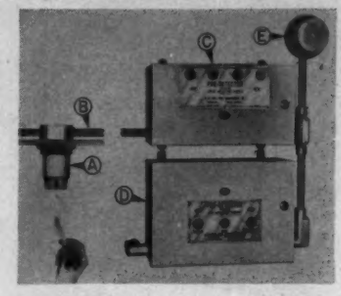
CITY.....STATE.....


it all starts with an idea...
and Tomlinson has an idea of the type of furniture you need. Our up-to-the-minute thinking and modern facilities equip us to give you contract furniture to satisfy your every specification. For furniture with vision . . . look to Tomlinson.
Furniture by TOMLINSON
OVER HALF A CENTURY'S LEADERSHIP IN STYLING
FURNITURE OF UNMATCHED VALUE

AE PRODUCTS

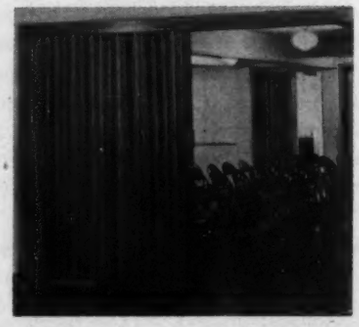
(*Continued from page 240*)

FIRE DETECTOR



The *automatic CO_2 fire pre-detector system* gives visual and audible alarms within seconds after the ignition of various types of fires. Pre-detector heads containing radioactive elements and spaced on centers up to 60 ft apart or up to 30 ft from side walls can quickly detect the smallest smoldering fire and indicate its location. The installation above shows A—pre-detector head, B—electrical conduit, C—space indicating cabinet, which shows location of fire in building, D—fire indicating cabinet, which gives visual alarms, and E—alarm bell. *C-O-Two Fire Equipment Co., Newark, N. J.*

FOLDING PANEL DOORS



Panelfold doors consist of vertical panels of wood, connected with vinyl resin, with individual panels hinged by a series of pantograph self-aligning, aluminum mounting units. The doors are supported at the top only, and glide on nylon wheels and heavy brass bearings in an extruded overhead track. *Panelfold Doors, Inc., 122 June St., Dayton, Ohio.*

ROTISSERIE RANGE

A *gas range* with a built-in rotisserie makes it possible for the housewife to use the barbecue, broil or spit method of cooking with no mechanical problems or extra appliances. The rotisserie is a removable part of the Char-glow Hi-Broiler section of the Occidental range. *Utility Appliance Corp., Los Angeles, Calif.*

(*Continued on page 246*)

big or small...old or new...

efficiency of operation prompts architects to specify usAIRco for air conditioning churches

Typical of recent usAIRco installations are these two Oklahoma churches... the internationally known Boston Avenue Methodist and the new Church of Madelene, excellent example of the modern type of building.

usAIRco's packaged central station (Model RK), frequently used in church installations, is a compact unit containing all elements of a built-up system (blower section, compressor section and evaporative condenser). The built-in evaporative condenser continually recirculates water, saving 95% in water consumption costs.

All component parts are factory tested and balanced, delivered ready for immediate installation. Only three simple connections are required: to ducts, water supply and drain, and power supply. Available in 11 sizes, 3 to 60 hp. in single or in dual circuit arrangements.

Another economy proved usAIRco unit for cooling churches is the unusually flexible "packaged" air conditioner, consisting of separate conditioner, blower, and plenum sections, allowing rearrangement in the field to fit any installation. Compressor spring mounting insures quiet operation. The usAIRco "packaged" air conditioner comes in 6 sizes, from 2 to 15 hp. 5 year warranty.

Boston Avenue Methodist Church of Tulsa has been built for some years. usAIRco installed the air conditioning equipment well after the structure was built. *Consulting engineers:* Coston & Frankfurt of Oklahoma City. *Architect:* Rush Endicott & Rush.

usAIRco air conditioned Tulsa's new Church of the Madelene. *Architect:* David Murray. *Engineer:* James Netherton.

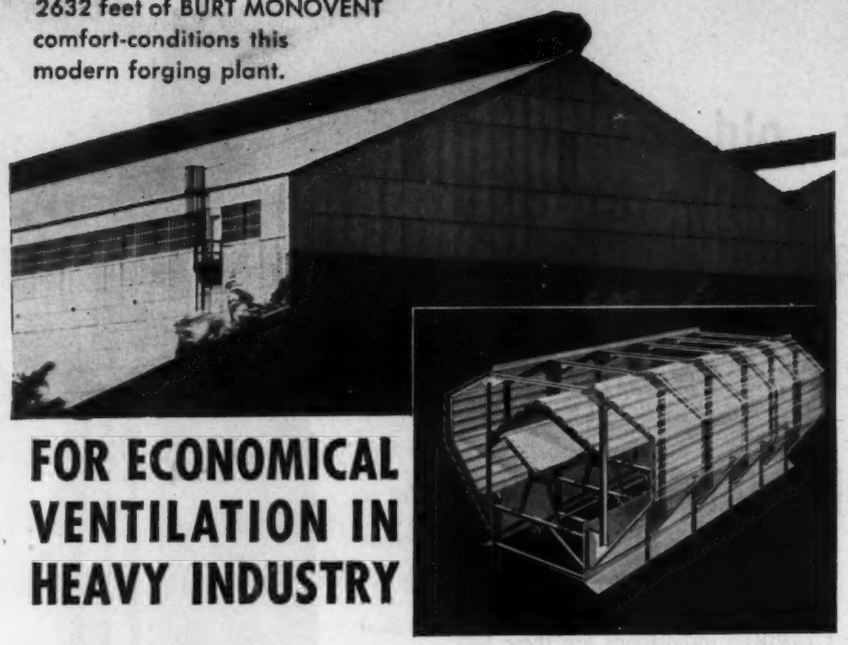
usAIRco
30 YEARS OF AIR CONDITIONING

For descriptive literature, write B. Robert McLain

UNITED STATES AIR CONDITIONING CORPORATION

MINNEAPOLIS 14, MINNESOTA *Export: 13 E. 40th St., N. Y. 16, N. Y., U. S. A.*

2632 feet of BURT MONOVENT comfort-conditions this modern forging plant.



FOR ECONOMICAL VENTILATION IN HEAVY INDUSTRY

BURT MONOVENT
Continuous Ridge Ventilator Is Your *BEST* Buy!

Where high heat or fumes require the removal of large volumes of air, Burt Monovent exhausts more air per dollar than any other ventilator. It provides uniform ventilation of the entire structure— in effect, converts the roof ridge to a quick-acting giant air valve. The Monovent is economical to install, operate and maintain and highly efficient.

- INSTALLS ON ANY TYPE ROOF
- SIZES FROM 4" TO 96"
- STURDY CONSTRUCTION FOR LONG LIFE
- MINIMUM MAINTENANCE

Send for FREE *Data Book!*

Write for Burt Data Book SPV-101-D. It supplies quick data on Burt's complete line of modern Roof Ventilators.

FAN & GRAVITY VENTILATORS • LOUVERS • SHEET METAL SPECIALTIES

The Burt Manufacturing Company

48 E. South St. Akron II, Ohio

MEMBER POWER FAN MANUFACTURERS ASSOCIATION

AE PRODUCTS

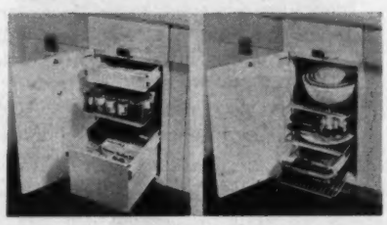
(*Continued from page 244*)

PIPE INSULATION

• A *molded silica pipe insulation* is a lightweight, inorganic, cellular structure of exploded silica aggregate which can be die-formed to size. *Fibrocel* does not shrink or expand, resists deformation and is economical to apply, thermally effective, permanent and sanitary. Intended primarily for heating, plumbing and air conditioning service, it is engineered for service in the 35 to 350 F range. *Johns-Manville, 22 East 40th St., New York 16, N. Y.*

• A *foamed plastic insulation* for dual-temperature lines to air-conditioning units can be slipped on pipes when the system is installed. It is cut to the desired length, slit longitudinally, snapped on the line and the slit sealed with an adhesive which is available with the material. *Armaflex* is light in weight, self-extinguishing, odorless and non-staining. It is made in 6-ft lengths and four sizes: ⅝, ⅞, 1⅛ and 1⅜ in. *Armstrong Cork Co., Lancaster, Pa.*

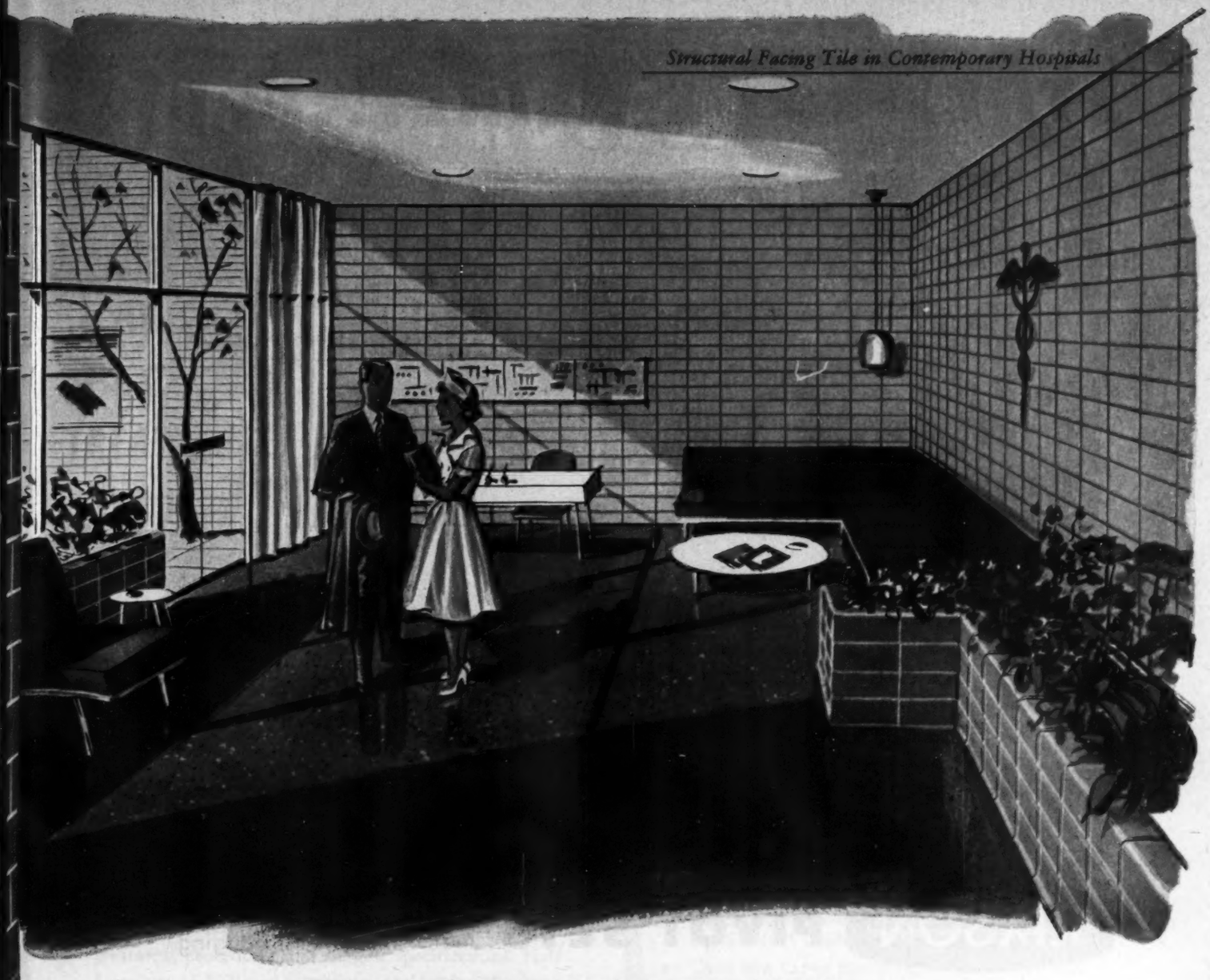
INTERCHANGEABLE KITCHEN CABINETS



Kitchen cabinets of baked enamel surface offer drawer and shelf combinations which are completely interchangeable, as shown above. In addition, a utility cabinet fitted to serve as a small appliance center makes it possible to operate toasters, coffee-makers and similar cooking appliances directly from sliding shelves. Double-panel door and exposed drawer fronts have honeycomb insulation for strength and quiet opening and closing. *American Standard Div., American Radiator & Standard Sanitary Corp., Pittsburgh 30, Pa.*

(*Continued on page 250*)

Structural Facing Tile in Contemporary Hospitals



STRUCTURAL FACING TILE combines

wall and finish, helps sanitation, saves maintenance

This hospital waiting room is designed to extend a warm welcome that will never wear out. Wall structure and a beautiful, permanent ceramic finish are economically combined in a single material—time-tested structural clay Facing Tile.

In the interest of better Facing Tile construction these companies have contributed to this advertisement.

CHARLESTON CLAY PRODUCTS CO.
Charleston 22, West Virginia

THE CLAYCRAFT CO.
Columbus 16, Ohio

MAPLETON CLAY PRODUCTS CO.
Canton, Ohio

METROPOLITAN BRICK, INC.
Canton 2, Ohio

McNEES-KITTANNING CO.
Kittanning, Pennsylvania

NATCO CORPORATION
Pittsburgh 22, Pennsylvania

STARK CERAMICS, INC.
Canton 1, Ohio

WEST VIRGINIA BRICK CO.
Charleston 24, West Virginia

This seal is your assurance of highest quality Facing Tile.

Clear glazed Facing Tile provides light-colored, easily-cleaned walls in this hospital kitchen. Bird S. Coler Memorial Hospital, New York, N. Y. Bureau of Architecture, New York City Department of Public Works.

Light green glazed Facing Tile is used in this delivery room both to aid sanitation and furnish a helpful background color for exacting visual tasks. Augustana Hospital, Chicago, Ill.; Schmidt, Garden and Erickson, architects.

Fire-safety, cheerful look, sure protection from sound transmission are among the benefits provided by Facing Tile in this patient's bedroom. Molly Stark Sanitarium, Canton, Ohio. Harry C. Frank, Architect.

New Catalog *showing shapes, sizes, specifications, is available to you without cost. Address Dept. AR-75 of any office listed here.*

FACING TILE INSTITUTE

1520 18th Street, N. W., Hudson 3-4200, Washington 6, D. C.
1949 Grand Central Terminal, Murray Hill 9-0270, N. Y. 17, N. Y.
2556 Clearview Avenue, N. W., Canton 5-2329, Canton 8, Ohio
221 N. LaSalle Street, Andover 3-6449, Chicago, Ill.

THEY LOOK ALIKE...

One door is hung on a RIXSON offset style closer—
the other is hung on a RIXSON offset style pivot set

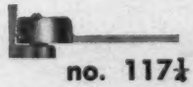
RIXSON PIVOT SETS

match the pivotal hanging style and general appearance of doors hung on RIXSON concealed floor closers. Provide a trim, secure hanging for doors not requiring a closer.

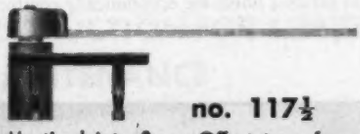
Pivot sets are furnished complete with matching top pivot.

4 *offset hung types for doors of varying sizes and styles*

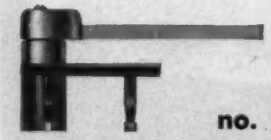
no. 117
Fastened to floor. Offset type for light interior doors.



no. 117¼
Fastened to jamb. Offset type for light interior doors.

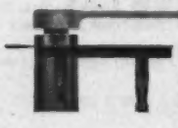


no. 117½
Mortised into floor. Offset type for entrance, vestibule, and heavy interior doors.



no. L117
Mortised into floor. Offset type for extra heavy or lead-lined doors.

center hung type...



no. 117¾ Mortised into floor. Center hung for entrance, vestibule, and heavy interior doors.

write for complete details and templates

THE OSCAR C. RIXSON CO.
9100 w. belmont ave. • franklin park, ill.

SURVEY PROVED!

a Hillyard FLOOR TREATMENT PLAN Gives You Longer-Lasting Floor Beauty

with on the job "Job-Captain" Service

FREE SURVEY OF ANY FLOORS ON YOUR BOARDS

Your nearby Hillyard Maintaineer®, a trained floor consultant, will be glad to make a survey of the floors in your building plans, and prepare specialized floor treatment procedures and suggest specifications. Half a century of Hillyard experience and leadership stand behind his recommendations.

Experience of Architects and their clients, on all types of building throughout the nation, PROVE the superiority of Hillyard floor treatments. They are tailored to give the surface desired for each type of floor and floor traffic—bring out the beauty of the floors —wear longer—and actually lower floor maintenance costs.

Thousands have found the *plus* Values of a Hillyard Floor Survey

- "Simple to apply" — 1954 Hospital of the Year, Illinois
- "Beautiful appearance" — World's largest Fraternal building, Michigan
- "Floors are non-skid and easy to maintain" — A Student Union in Utah
- "This gym floor stood up 14 years without removing finish or re-sanding" — College in Texas
- "Hillyard meets the test of providing our plants with the best-looking floors, the most durable finish, and at the lowest cost" — World-famous bottler,. New York State
- "In addition to wearing qualities, there is an intangible factor which makes Hillyard products even more valuable to the user. I refer to the service organization" — Institution in Massachusetts

THERE IS NO CHARGE, NO OBLIGATION FOR THIS SERVICE. MAIL THIS COUPON TODAY.

"on your staff, not your payroll"

FLOOR HILLYARD TREATMENTS

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San Jose, Calif. Passaic, N. J.

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HILLYARD CHEMICAL CO.
St. Joseph, Missouri

Yes! Please have your Maintaineer survey my floors and show how we can reduce maintenance costs.

Name.....

Institution.....

Address.....

City.....State.....

(Continued from page 246)

WATCHMAN'S CLOCK

Vanguard watchman's clock makes it possible for a watchman to record his rounds for a full 72 hr before it is necessary to change the dial. However, the dial can be changed daily. It has an 8-day jeweled movement sealed in a rust-proof aluminum case. Each time the clock is opened or closed a fool-proof "tel-tale" makes a time record by punching a hole in the dial. *Lathem Watchmans Clock Co., 76 3rd St., N. W., Atlanta, Ga.*

WIRING CONDUIT

A flexible-metal electrical wiring conduit which is fully enclosed in a tough, waterproof synthetic cover has a galvanized steel core. Type U20SC conduit is said to provide complete protection from moisture, dirt, oil, fumes and chemicals. *Universal Metal Hose Co., 2133 So. Kedzie Ave., Chicago 23, Ill.*

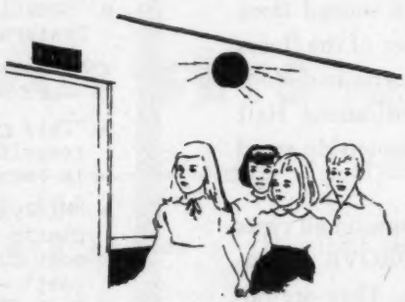
DEPENDABLE

Telephone and Fire Alarm Systems for SCHOOLS

Use Couch FIRE ALARM SYSTEMS to

EVACUATE THE CHILDREN
LOCATE THE FIRE
ALERT THE FIRE DEPARTMENT

Whatever the type of fire protection you need, whatever the size of the building, a Couch fire alarm system has the dependability that saves lives and property. Write for Bulletin 124.



Use Couch TELEPHONE SYSTEMS for INTERIOR COMMUNICATION

OFFICE TO OFFICE
OFFICE TO CLASSROOM
CLASSROOM TO CLASSROOM

All the needs of interior communication can be met by Couch telephone systems. For both private conversation and group conference, a Couch telephone installation will save you valuable time. Write for Bulletin 121.

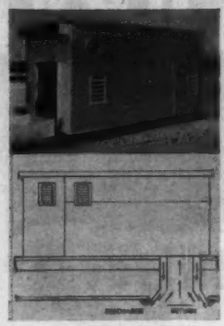
DATA SHEETS AND BULLETINS AVAILABLE UPON REQUEST.

Built-in Dependability

S. H. Couch Company, Inc.

NORTH QUINCY 71, MASSACHUSETTS

SELF-CONTAINED AIR CONDITIONING

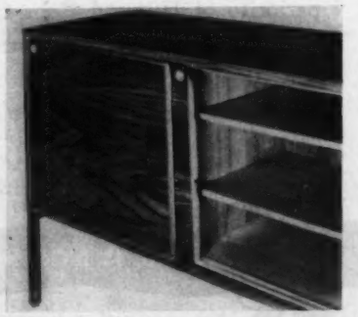


The *Airmaster air conditioning unit* is installed on the roof of one-story industrial or commercial buildings. No plumbing hookups or drains are required — a single opening is made in the ceiling for the combination air-diffuser, air-return. *Alco Refrigeration, 3952 St. Clair Ave., Cleveland 14, Ohio.*

HOME HEATING AND COOLING

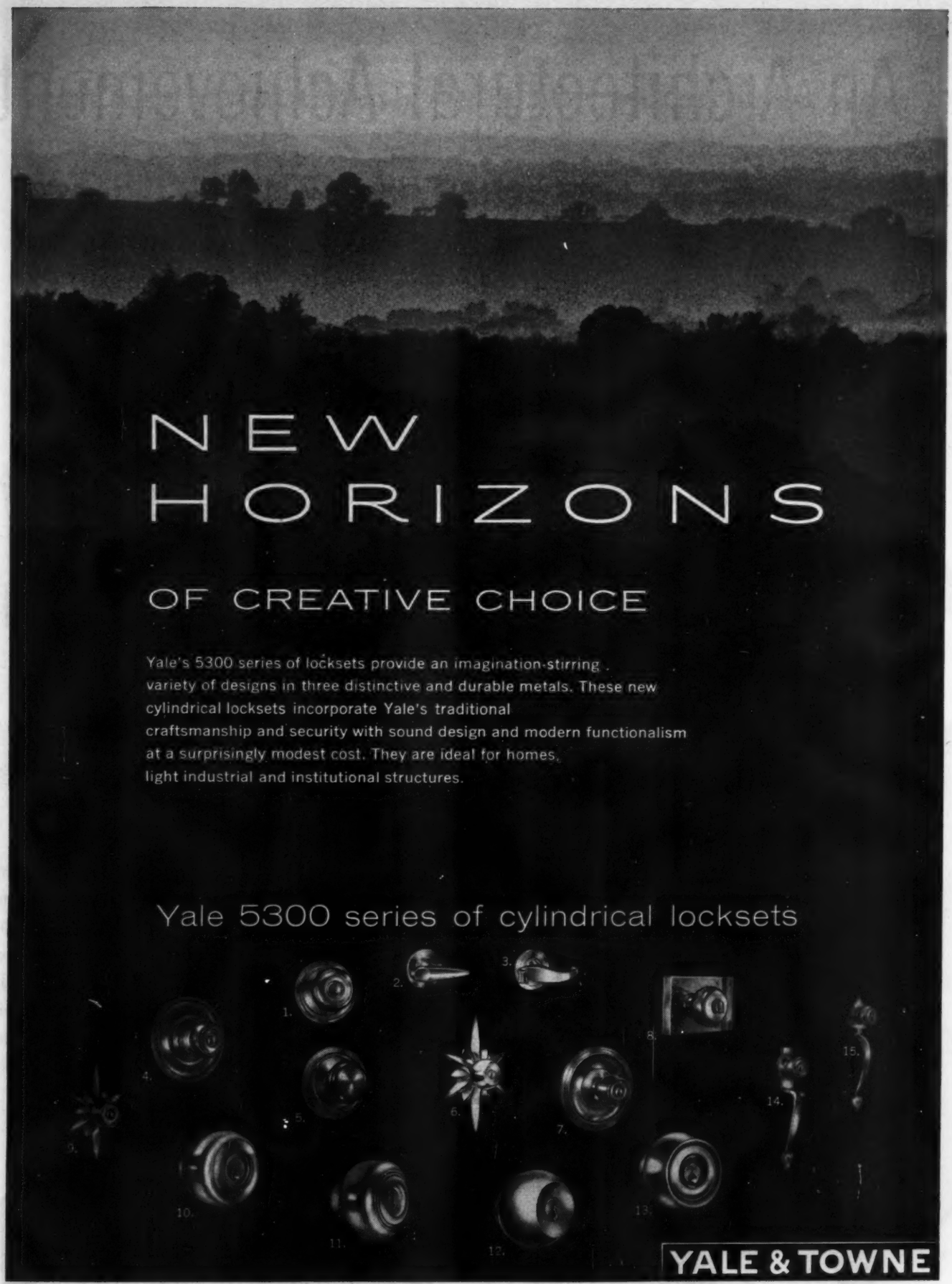
A *packaged home heating and cooling unit* designed for homes and small commercial buildings uses water as the temperature-controlling medium for air filtered to desired locations by room convectors. Automatic operation assures year-round comfort to suit individual desires. *Home Equip. Div., Combustion Engineering, Inc., Chattanooga, Tenn.*

SLIDING-DOOR CABINET



A *double-door cabinet* has a flush surface when the doors are closed, is opened by pushing in either door at the center and sliding the pushed-in door behind the closed door. Shelves are adjustable. Dimensions are 42 in. long, 18 in. deep and 28 in. high. *Lehigh Furniture Corp., 16 East 53rd St., New York 28, N. Y.*

(Continued on page 254)

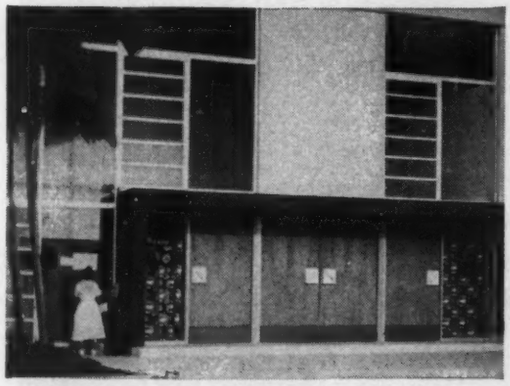


Eight new escutcheons that combine with four new knobs... two new entrance handles... two new lever handles: 1. Troy with Norfolk escutcheon. 2. Deauville lever handle. 3. Guilford lever handle. 4. Troy with Madison escutcheon. 5. Litchfield with Savoy escutcheon. 6. Classic with Dallas escutcheon. 7. Nassau with Newport escutcheon. 8. Litchfield with Williamsburg escutcheon. 9. Nassau with Constellation escutcheon. 10. Litchfield knob. 11. Troy knob. 12. Classic knob. 13. Nassau knob. 14. Arlington entrance handle. 15. Westbrook entrance handle. Send for FREE full-color catalog. THE YALE & TOWNE MFG. CO., LOCK & HARDWARE DIV., STAMFORD, CONN. YALE, REG. U.S. PAT. OFF.

An Architectural Achievement

New Ocean Front Auditorium,

Miami Beach



DOORWAY TO FUNCTIONAL BEAUTY
This exterior view of the inviting doorway to the new auditorium shows the careful planning and imagination of the architect. Each detail contributes to the modern feel of this architectural achievement.

Congratulations to architect Leonard H. Glasser

Keyed to modern needs, this handsome structure was designed by Architect Glasser to accommodate the growing number of conventions attracted to Miami Beach each year. The building is advanced in style, modern in its facilities. In addition to the main auditorium, it houses spacious lounges and offices; it's immediately adjacent to the beach, with a large patio for outside dances. Besides being completely air conditioned, it is equipped with Westinghouse Water Coolers. The architect knows that Westinghouse gives his clients more cold water per dollar of investment.

Architect LEONARD H. GLASSER made sure with

Westinghouse. Leading architects specify Westinghouse Water Coolers with *Dual Electric Control* for both finger tip and toe tip operation on the same cooler . . . at no extra cost. This exclusive two-way control is one of the many features that have made Westinghouse first in manufacture of water coolers.

Cool, Cool Water. Westinghouse Water Coolers assure a continuous flow of water that stays constantly cool. The patented *Pre-Cooler* and exclusive *Super Sub-Cooler* utilize cold waste water to precool incoming drinking water and sub-cool the hot liquid refrigerant.

Superior Performance. Westinghouse Water Coolers help the architect over the problems created by varying water pressure. The automatic stream-height control, part of the bubbler assembly, prevents splash and dribble by compensating for water pressure variations.

Complete Reliability! The Westinghouse Hermetically-Sealed Refrigeration System is tamper-proof, service-free and assures a long life of trouble-free operation. All of the 13 models are backed by the Westinghouse 5-Year Guarantee Plan.

Save with the Pay-Way Computer

Designed to aid in specifying the number, type and location of water coolers for your clients. Based on time and motion studies for more efficient plant operation. Check the yellow pages of the telephone directory for your nearest Westinghouse Water Cooler Distributor . . . or drop us a line.

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Electric Appliance Division • Springfield 2, Mass.

WSE8B 8-Gallon Static Air Cooled Explosion-Proof

WWE14B 14-Gallon Water Cooled Explosion-Proof

WSBW-2 2-Gallon Home Water Cooler

WSC2 Compartment Pressure Cooler

WSBC1 Compartment Bottle Cooler

(*Continued from page 250*)

BUILT-IN TV

A *custom TV installation* can be located in the blueprint stage for best lighting conditions, comfortable eye level and uncrowded seating. The Walsco PC-9 television chassis features completely printed circuits and automatic operation. Both volume and channel selection are operated by a portable, hand-size control. *Walsco Electronic Corp., 3225 Exposition Place, Los Angeles 18, Calif.*

PRECAST SHOWER FLOOR

A *waterproof precast shower floor* provides permanent drainage as well as an easy-to-clean surface with a warm foot-gripping finish. After the sub-floor is laid in the regular manner, the shower floor slides into place. *Fiat Metal Mfg. Co., Chicago, Ill.*

INSULATION PROTECTOR

Protection of thermal insulation against weather, abrasion, moisture and most chemicals is possible with a new type of prefabricated cover made of Krene

plastic. Protecktinsul is wrapped around insulated pipe and closed by pulling a slide fastener which locks the pre-formed edges together. It can be used on insulated pipe indoors or outdoors, underground in a steam-distribution system of conduits or on low-pressure building supply lines. It covers pipe from ½ to 33 in. in diameter and in lengths up to 100 ft. *Miracle Adhesives Corp., 214 East 53rd St., New York 22, N. Y.*

FURNACE

Two new furnaces, a gas-fired unit of 150,000 Btu input (120,000 Btu output) and an oil-fired unit of 130,000 Btu output, are available in two styles: a vertical model designed for closets and small utility rooms and a console model for basements. Both models are 60¾ in. high and 41¾ in. deep. The vertical model is 23½ in. wide, and the console model is 9 in. wider. When used as a component of year-round air conditioning systems, the units will be equipped with a special blower, combination heating and cooling thermostat and relay box. *Coleman Co., Wichita, Kan.*

AIR FLOW REGULATOR

Wa-Trol Regulators for regulating the air flow of heating and air conditioning feature a spring-loaded knob, which makes it possible to adjust the damper by a slight push and turn motion. It automatically locks in place when the knob is released. *Thermal Agency, Thermal Bldg., 1515 Dallas, Houston, Tex.*

CORRECTION

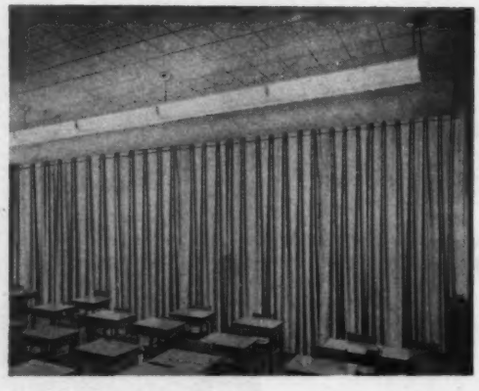
The *steel roof construction* mentioned on page 298 of the April 1955 *AR* should have been described: "of reinforced vermiculite insulating concrete on an unprotected ribbed steel deck, has a reported fire resistance of approximately 1½ hr."

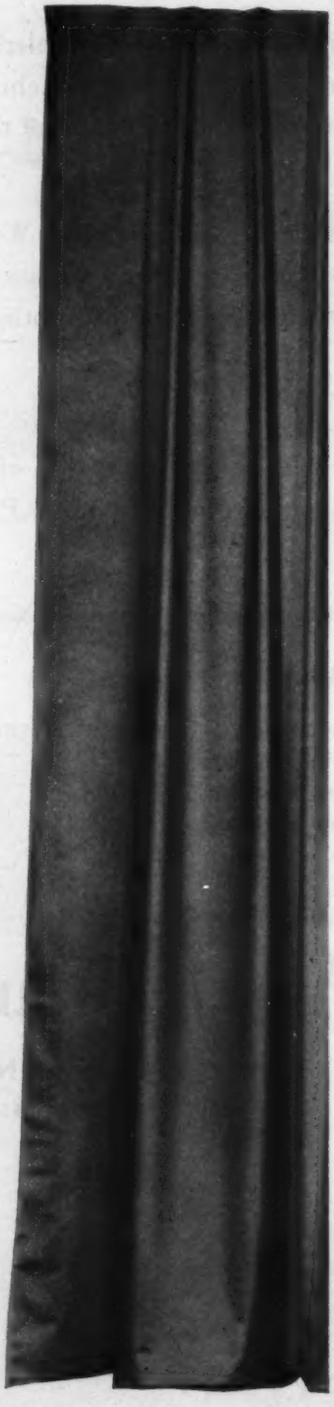
(*Continued on page 258*)

LIGHT CONTROL DRAPERIES

LuXout

The latest of its kind on the market, LuXout offers you soft light without glare, or complete darkness for the classroom. Made of plastic vinyl and available in three pastel translucent colors and four opaque colors, custom tailored to suit the classroom, LuXout draperies are famous for their beauty and durability.



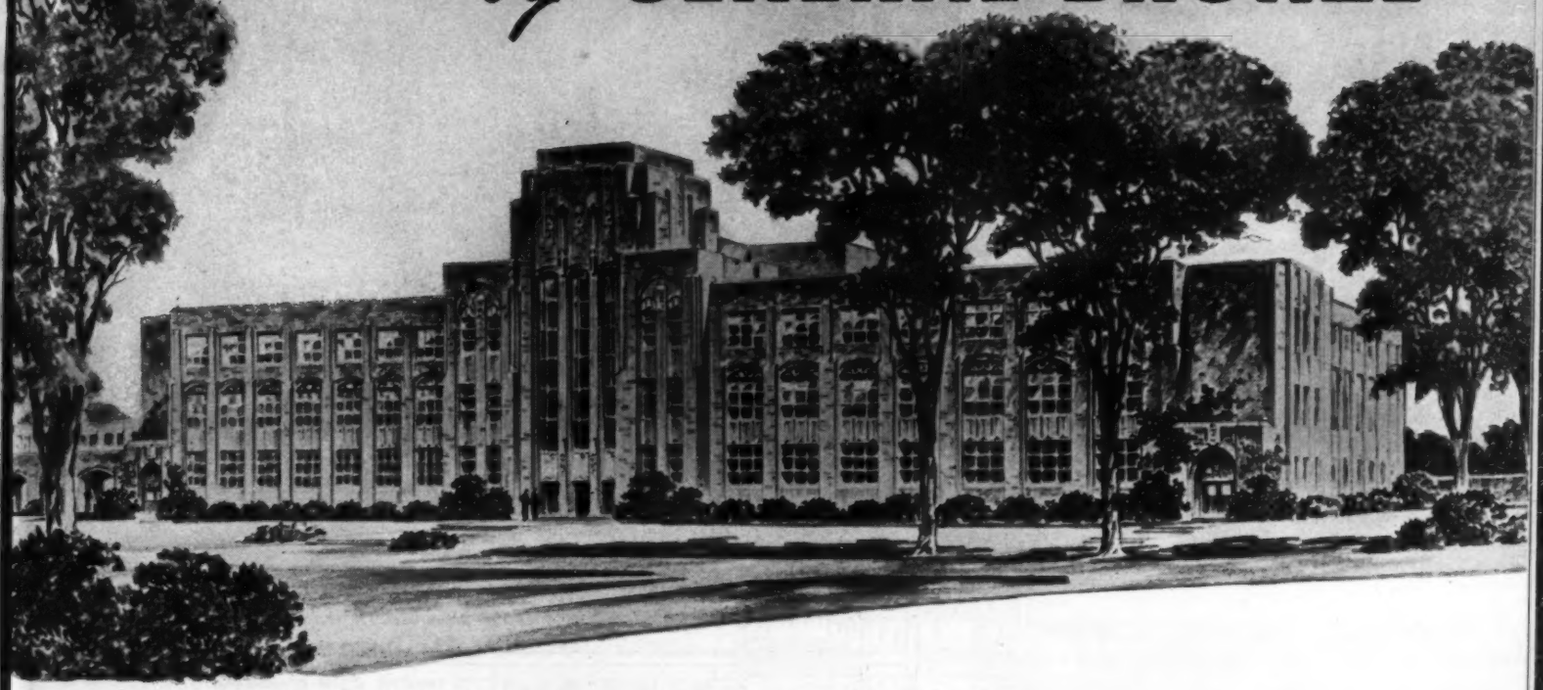


Write for Complete Information Including Colors and Samples.

PLASTIC PRODUCTS, INC.
RICHMOND, VIRGINIA

FOR NEW AND OUTSTANDING **SCHOOL AND COLLEGE BUILDINGS**

aluminum WINDOWS *by* GENERAL BRONZE



● LIBERAL ARTS BUILDING
St. John's University, Hillcrest, N. Y.
Architect: Henry V. Murphy
Contractor: Veit & Co.

● Ever stop to consider why so many architects specify "aluminum windows by General Bronze" for their outstanding jobs? Well, the answer is quite simple. They want windows of outstanding quality—windows that will enhance their job and, at the same time, give their clients many years of satisfactory trouble-free service. And they have learned from experience that the superior engineering and precision craftsmanship of General Bronze is their assurance of dependable quality at all times.

Whether you are planning a new school or college building, a new hospital, or a new curtain-wall office building, General Bronze can be of real assistance to you. From our more than 45 years of practical experience in designing and fabricating windows, spandrels, curtain-walls and architectural metal work for many of America's outstanding buildings, we have learned what features architects want in windows—what kind of help they appreciate most—what makes their job run easier and smoother.

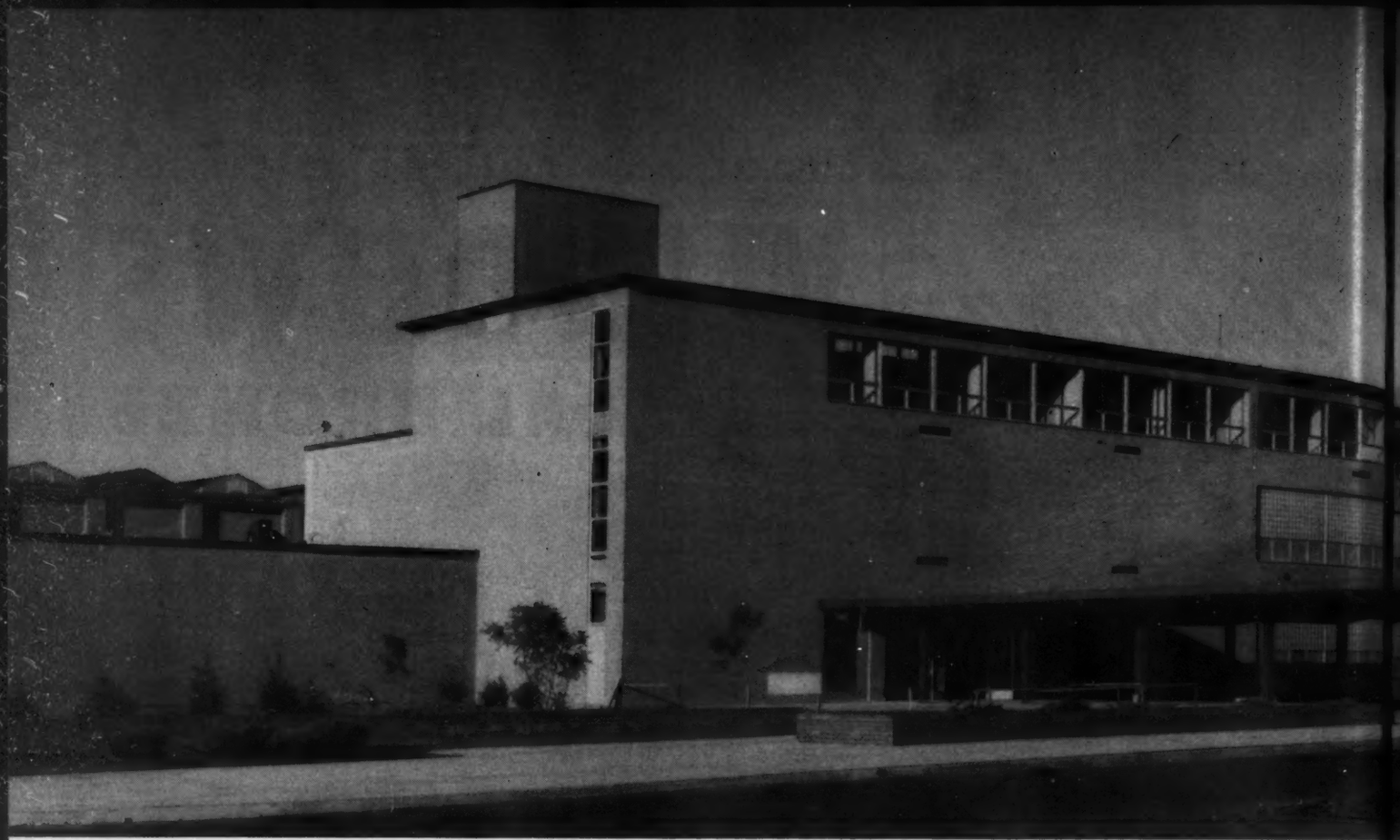
Before you select the windows for your next job, take a look at the General Bronze catalog in Sweet's (Section 16) and see for yourself the versatility of our complete line. Study carefully the full-size detail drawings and note the strong tubular sections, as well as the many other features that have made General Bronze a by-word for quality windows among architects and contractors everywhere. And when you're ready, call in one of the GB sales engineers. You'll find him anxious and ready to serve you at all times.

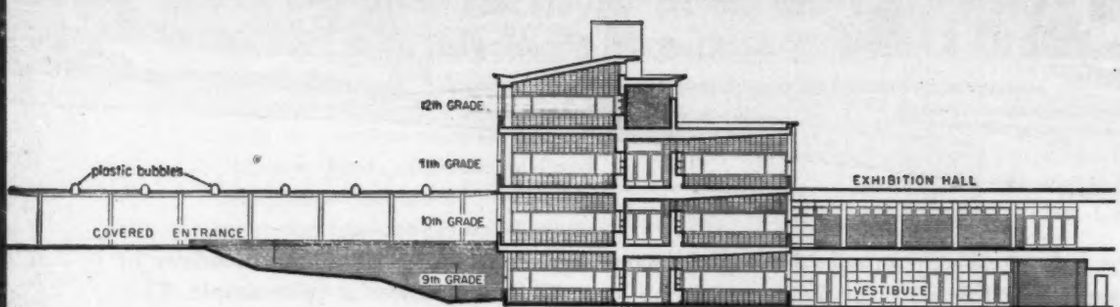
QUALITY APPROVED
(TYPE)
AWMA Quality Specifications—Materials, Construction, Strength of sections and Air infiltration requirements—confirmed by Pittsburgh Testing Laboratory.
AWMA—ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

GENERAL BRONZE CORPORATION

GENERAL BRONZE CORPORATION • GARDEN CITY, N. Y.

PERMATITE DIVISION—Custom-built Windows, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows
BRACH MFG. CO. DIVISION—Multel, T. V., Radio and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom fabrication in steel and iron.

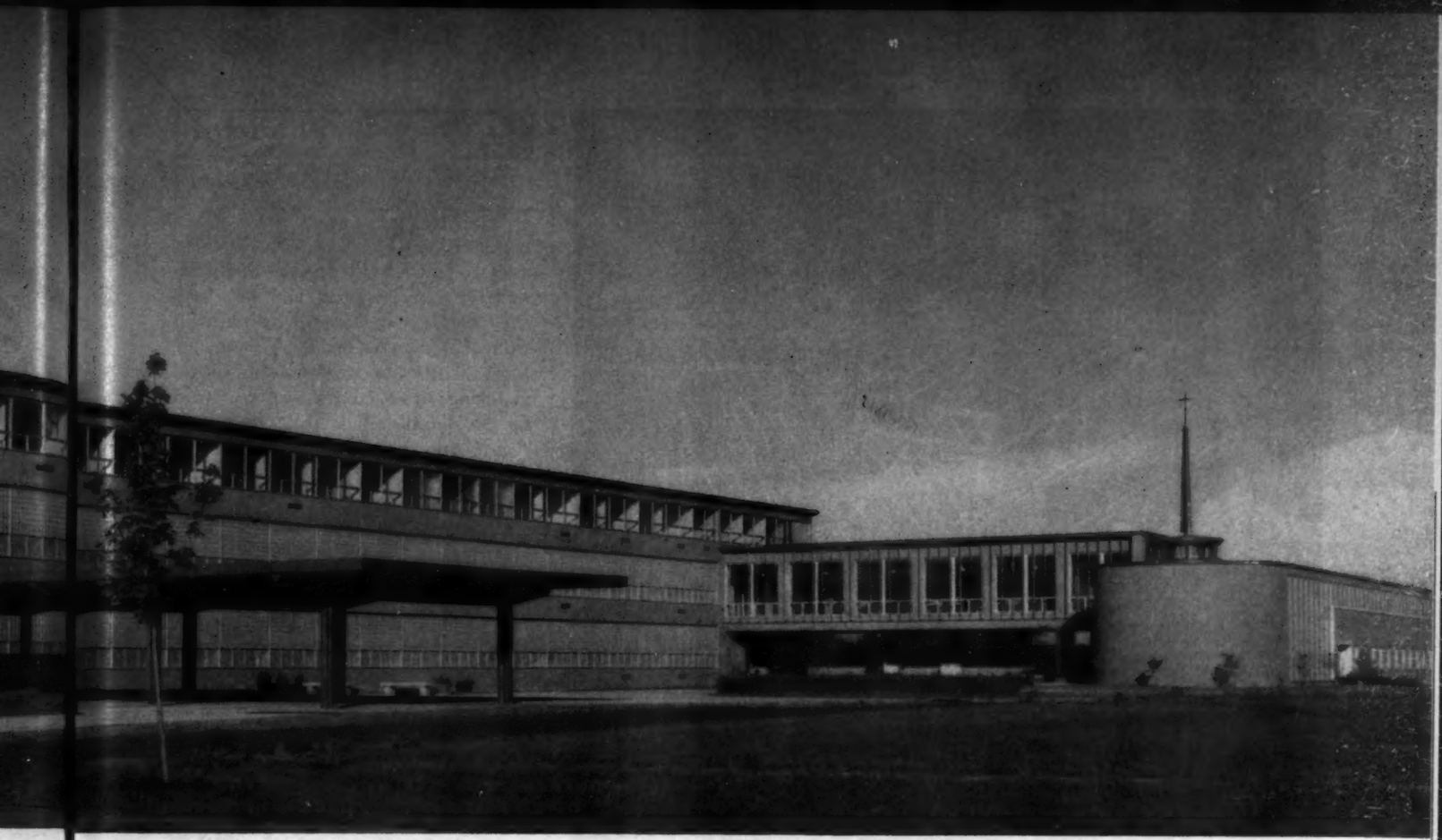




How a school was designed at savings of 31% in floor system costs

CECO STEEL

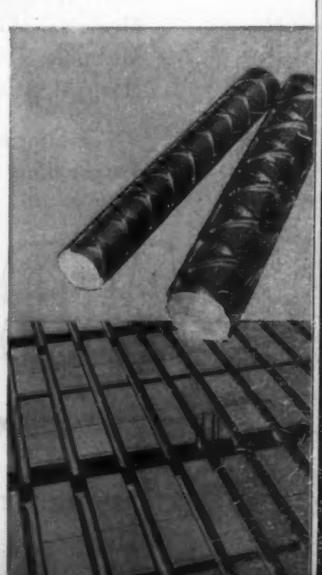
In construction products CECO ENGINEERING makes the big difference



Bishop DuBourg High School—St. Louis, Missouri
Architects: Murphy & Mackey/Structural Engineer: Neal J. Campb
Contractor: C. Rallo Contracting Company, Inc.

Ceco-Meyer Removable Steelform Construction proves more economical than solid slab or tile filler in study made for Bishop DuBourg High School in St. Louis. When a school is designed around a program planned jointly by architects and educators, it is possible to cut costs and at the same time satisfy functional and psychological needs. So goes the story of Bishop DuBourg High School. Architects Murphy & Mackey asked the school administrators to outline physical requirements and spiritual essentials. On the basis of that data, they created a pupil-centered school with a warm, human atmosphere instead of an institutional feeling. The building is four stories high, with each floor a one-grade school in itself . . . classes stacked one above the other. Common facilities, including library, shop and gymnasium, are tied in so students can reach them without walking through corridors used by other grades. With layout settled, methods of construction then got a critical eye. Floor systems studied were (1) solid slab and (2) concrete joist construction formed with (A) tile filler and (B) removable steelforms. Ceco-Meyer Removable Steelforms were selected on the basis of 31% savings in cost over solid slab and 27% over tile filler. Reasons for savings: less forming lumber, concrete, steel and labor than solid slab; less material cost than tile filler. Also the Ceco method was deemed the most practical and fastest for rigid fire-safe construction. So on your next building project consult Ceco Engineers in the preplanning stage. Chances are they can help you on advance programing so savings can be made in time, material and labor.

Underside view of concrete joists formed with Ceco-Meyer Removable Flange-Type Steelforms, showing tie-wires for ceiling attachment.



Ceco Reinforcing Steel was fabricated in accordance with design drawings. Delivery was made to the job site as required by the contractor's construction schedule, thus saving double handling on the job.

●

View of Ceco-Meyer Steelforms in place, ready for placement of reinforcing steel.

CECO STEEL PRODUCTS CORPORATION

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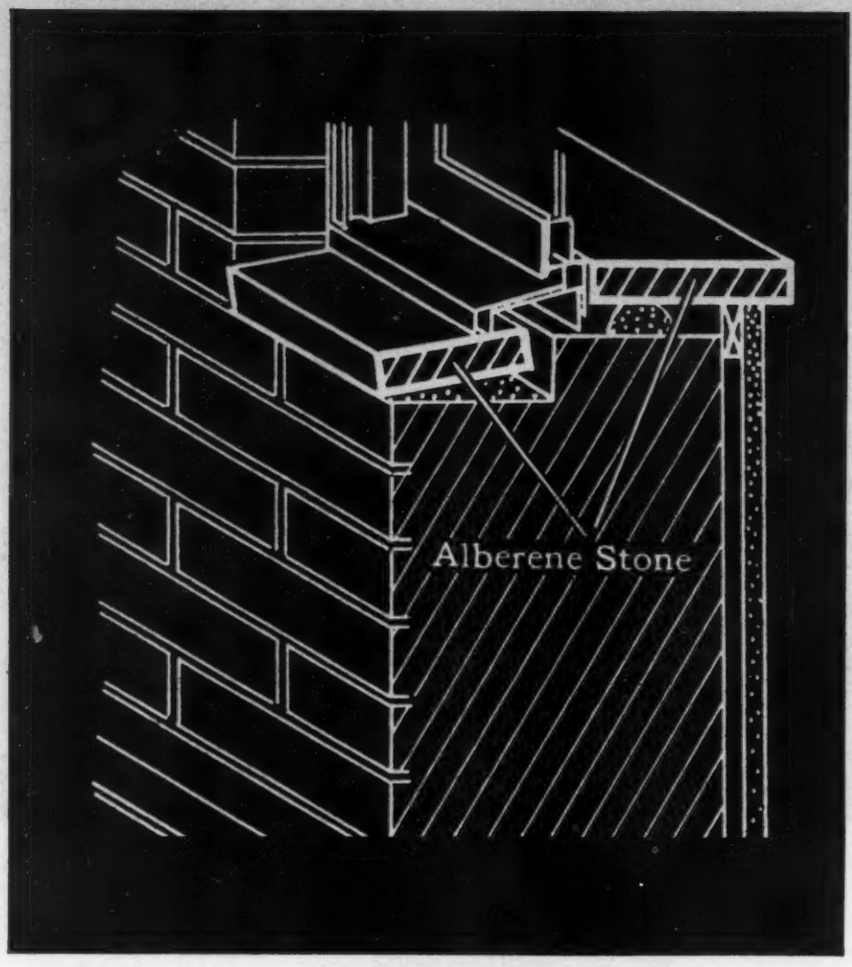

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Alberene Stone—*the natural silicate stone*—is weatherproof. Its low absorbency prevents spalling and splitting in freezing temperatures. Its all-silicate mineral components resist chemical attack, staining and loss of surface polish. It requires no maintenance.

That's why Alberene Stone window stools have recently been shipped to many of the finest new hospitals in the country including: Providence Hospital and U. S. Soldiers' Home, Washington, D. C.; Baptist Memorial Hospital — University of Tennessee Physiology Building, Memphis, Tenn.; Coney Island Hospital, New York; and the Grady Hospital, Atlanta, Ga.

For information and technical assistance, address: Alberene Stone Corporation, 419 Fourth Avenue, New York 16, N. Y.

ALBERENE STONE

provides LOW ABSORBENCY protection

AE PRODUCTS

(*Continued from page 254*)

TEXTURED WINDOW SHADE

A *textured window shade* with matching drapery fabric has been created by designer Freda Diamond and has been cited for "Good Design" by the Museum of Modern Art and the Merchandise Mart. Texturlite window shades and matching sheer fabrics were designed for the *Window Shade Mfrs. Assoc., 443 Fourth Ave., New York 16, N. Y.*

PLASTIC CONCRETE BOND

Inlaycrete Bond is brush-applied to bond permanently concrete to concrete, iron, steel, brick, stone, glass or any firm surface. The surface is said to be ready for retopping in 30 min with concrete, cold mastic or magnesite. According to the manufacturer, the bond doesn't age, stays elastic and isn't impaired by sledge hammer blows. *The Garland Co., Cleveland 5, Ohio.*

PLASTIC WALL COVERING

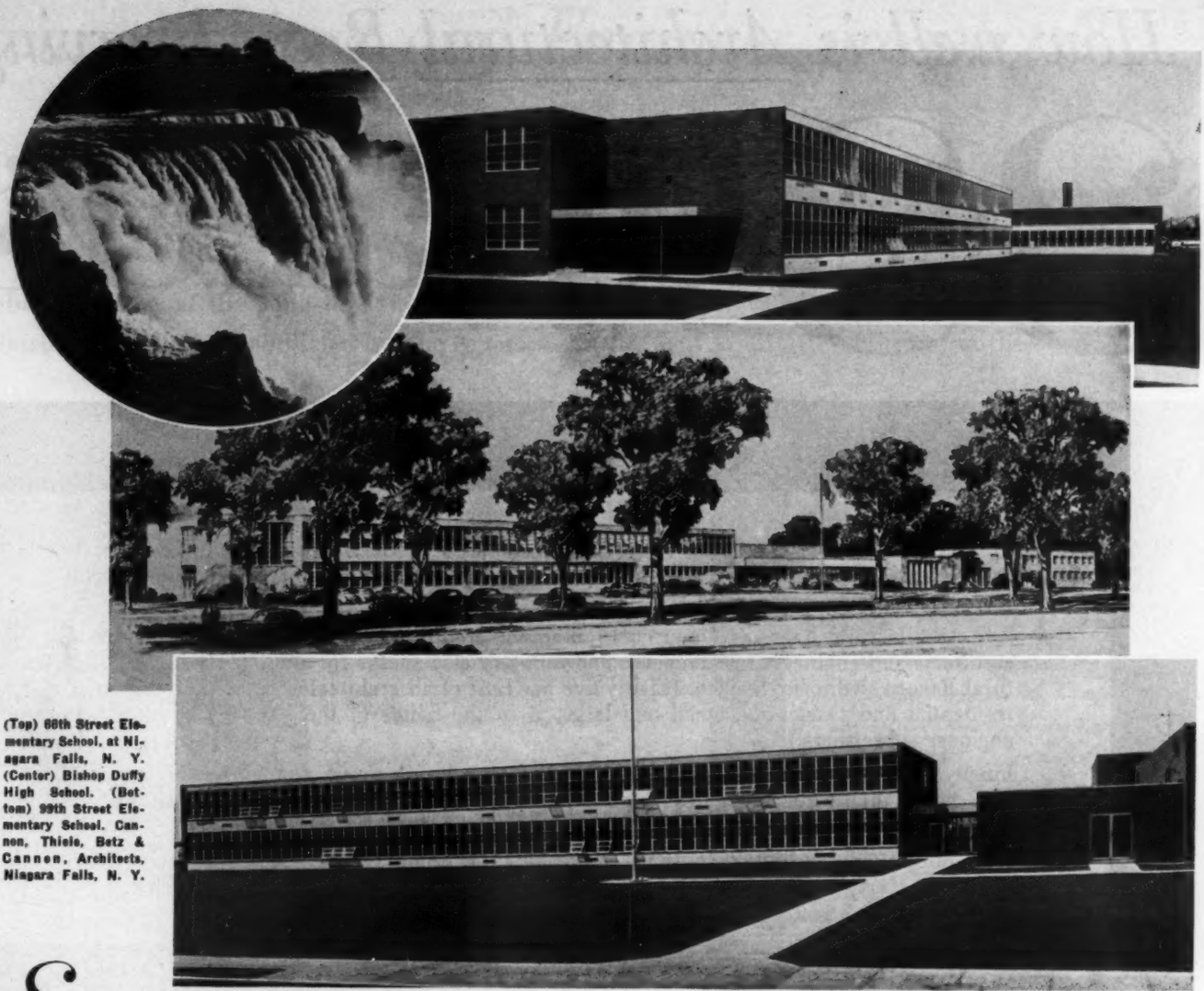
Shado-Star plastic fabric is an "electronically fused" vinyl fabric which is available in wall covering weight but which can also be used for seat coverings. It comes in light and dark, fade-proof, solid colors with diagonal lines which reflect the light. It is claimed to be stain- and soil-resistant, flame-resistant, won't crack, chip, peel or scratch and wipes clean with a damp cloth. *L. E. Carpenter & Co., 350 Fifth Ave., New York 1, N. Y.*

BASEMENT ENTRANCE

An *all-steel basement entrance* which provides direct access to the basement from outdoors has overlapping flanges on both door and frame to assure a leak-proof fit. Two slide bolts lock the door securely from the inside. The Service-way can also be locked in the full-open position to prevent accidental closing. *Heatilator, Inc., Syracuse 5, N. Y.*

ROOM DIVIDERS

Decorative sliding room dividers are framed in light or dark mahogany and ebony in stock sizes. Backgrounds of the panels are of perforated metal or translucent plastic in a number of designs. An aluminum track and adjustable nylon ball-bearing top rollers afford quiet, smooth operation. A sliding guide attached to the bottoms of the panels permits them to be installed over carpets without damage. *Carlton Products, 344 Palisade St., Pasadena 3, Calif.*



(Top) 66th Street Elementary School, at Niagara Falls, N. Y. (Center) Bishop Duffy High School. (Bottom) 99th Street Elementary School. Cannon, Thiele, Betz & Cannon, Architects, Niagara Falls, N. Y.

Eye-Appealing Pratt & Lambert Colors Chosen for All Three Schools!

BEAUTIFUL COLORS harmoniously employed, add warmth, friendliness and distinction to the atmosphere of modern schools... a welcome improvement, advantageous to students and appreciated by teachers, administrators and members of the community.

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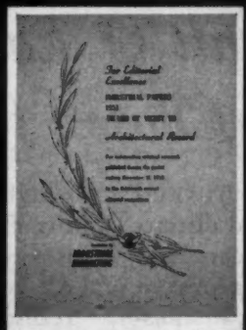
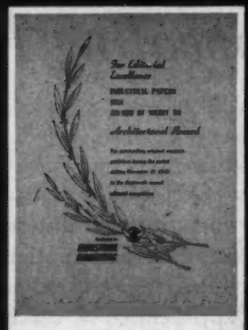
First Award 1951—best graphic presentation—"Architecture in Hawaii," October and November 1950 issues.

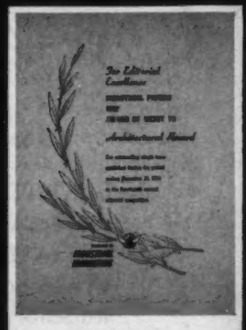
First Award 1951—best single issue—October 1950 issue featuring "Mental Hospitals and Schools."



Award of Merit 1951 — outstanding original research—"Design Requirements of Motels," March 1950 issue.

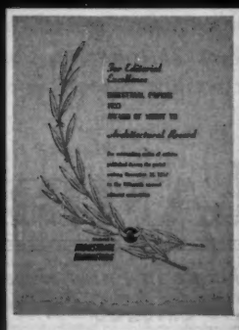


Award of Merit 1951 — outstanding original research—"Next Year's Boom Will Be Different," November 1950.

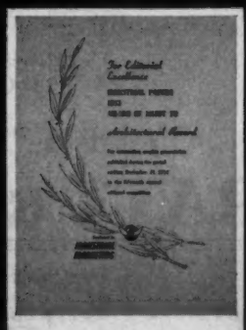


Award of Merit 1952 — outstanding issue, June 1951 issue featuring "Schools and School Practice."

Award of Merit 1952 — outstanding series of articles—"Philosophy of Architecture," (1951).



Award of Merit 1953 — outstanding series of articles—"Philosophy of Architecture," (1952).



Award of Merit 1953 — outstanding graphic presentation — "Building in the Tropics," August 1952.

Award of Merit 1953 — outstanding single article—"Building in the Tropics," August 1952 issue.

Award of Merit 1953 — outstanding single article—"United Nations Headquarters," July 1952 issue.

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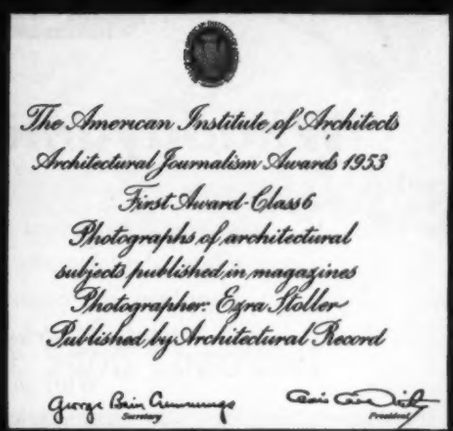
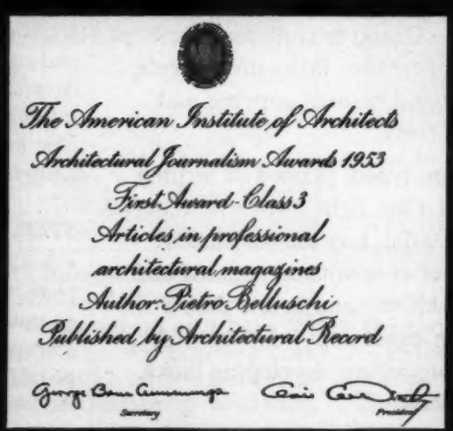

The American Institute of Architects
Architectural Journalism Awards 1953
First Award-Class 6
Photographs of architectural subjects published in magazines
Photographer: Ezra Stoller
Published by Architectural Record

First Award 1954—"Best photograph of an architectural subject published in a magazine"—American Institute of Architects' Competition.

Award of Merit 1952—outstanding graphic presentation—"Vacation House in Oregon," July 1951 issue.


The American Institute of Architects
Architectural Journalism Awards 1953
First Award-Class 3
Articles in professional architectural magazines
Author: Pietro Belluschi
Published by Architectural Record

First Award 1954—"Best article in a professional architectural magazine"—American Institute of Architects' Competition.

Award of Merit 1954—outstanding original research—"Guns and Butter and Babies," November 1953.

Award of Merit 1955—outstanding series of articles—"Thin Shells"—July, September, November, 1954.

First Award 1954—best graphic presentation—"Hotel Copan, Sao Paulo, Brazil," October 1953 issue.

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A.E. LITERATURE

(Continued from page 198)

CARRIER SYSTEMS

• A 4-page illustrated booklet describes a *prefabricated airtube carrier system* and provides instructions for laying out and installing the double-tube system, including plan and side-view drawings. *Lamson Corp., Syracuse 1, N. Y.**

TOILET COMPARTMENTS

• *Toilet compartments* are illustrated in available colors in a 28-page catalog which also includes engineering drawings, descriptions and specifications. Catalog 92. *The Sanymetal Products Co., Inc., 1701 Urbana Rd., Cleveland 12, Ohio.**

CURTAIN WALLS

• *The Curtain Wall Story* describes the techniques and equipment used to field-assemble insulated metal curtain and sandwich walls. *Nelson Stud Welding Div., Gregory Industries, Inc., Lorain, Ohio.*

FIREPLACES

• An 82-page booklet offers descriptions and illustrations of how to build both indoor and outdoor fireplaces of contemporary as well as traditional design. 75¢. *The Donley Bros. Co., 13968 Miles Ave., Cleveland 5, Ohio.**

ELECTRICAL EQUIPMENT

• A 12-page publication, GEC-1309, contains information on product features and applications of the new *load centers, circuit breakers* and *accessories*, as well as information on merchandising aids available for the use of contractors. *General Electric Corp., Plainville, Conn.**

STEEL TUBING

• A 32-page handbook covers the complete range of sizes, gages and tolerances on square, round, rectangular *steel tubing* and special cold formed shapes as well as giving physical properties, elements of sections and other data. *Van Huffel Tube Corp., Warren, Ohio.*

INSULATION MATERIAL

• Photographs, panel cross sections and job data on *Foamglas* cellular *glass insulation* for thin wall and sandwich panel construction is contained in a 12-page brochure available from the *Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.**

(Continued on page 264)

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NOW! ZONOLITE® OFFERS THE BUILT-IN BENEFITS OF INSULATION, FIRE-SAFETY, LIGHT WEIGHT AND PERMANENCE...

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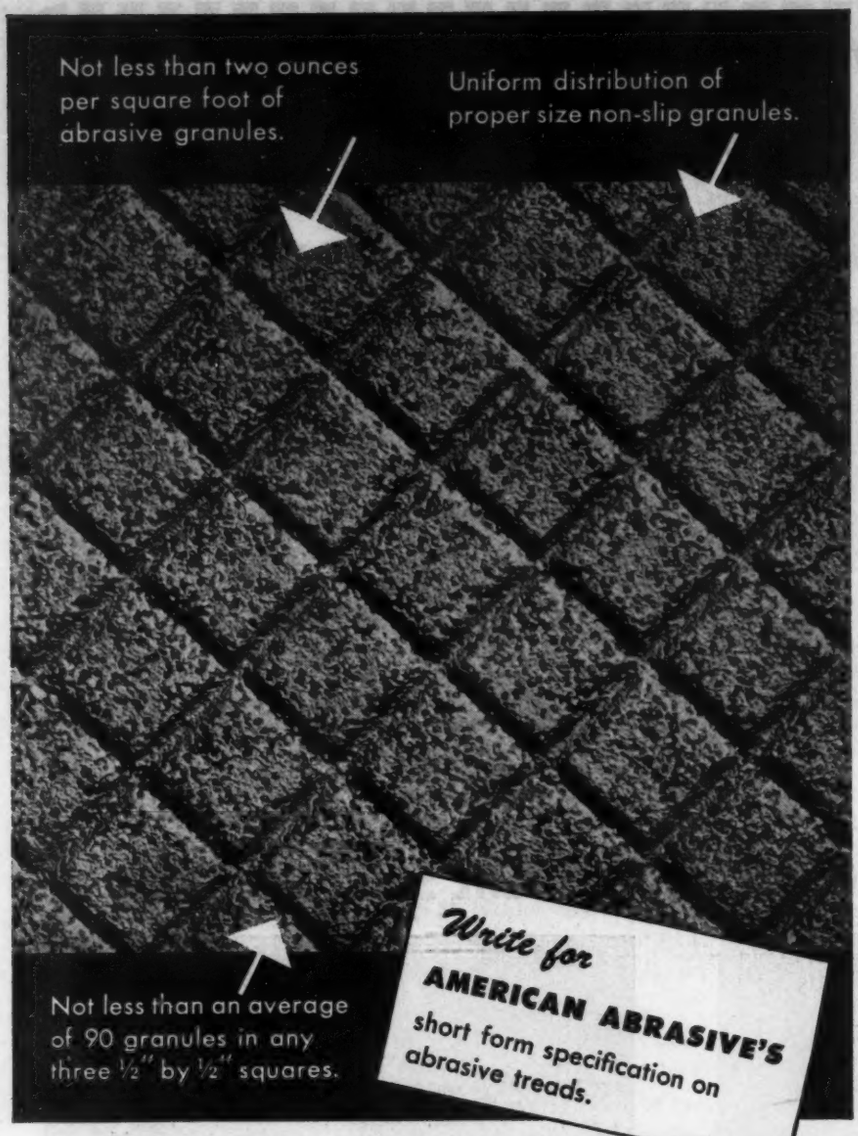
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This is an unretouched photograph of a Feralun tread taken after acid treatment. (Paint is removed and acid is used to eat away the metal base so as to isolate the actual abrasive content of the tread.) Note the full and even distribution of abrasive — for greater safety, longer wear. In fact, American Abrasive has set the quality standards shown above. That's why Feralun abrasive treads cannot be equalled.

Feralun has provided lasting safety — free from maintenance for the past 35 years. Available as treads, thresholds, floor plates and elevator sills. Also in Bronzalun, Alumalun and Nicalun. See Sweet's Catalog 1955—12b/Am.

AB 128

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AE LITERATURE

(Continued from page 262)

FURNITURE

• *Wrought iron furniture* including chairs, beds and tables for interior as well as exterior use are specified and illustrated with photographs and color swatches. *John B. Salterni Co., Inc., 510 E. 72nd St., New York 21.*

SCHOOL EQUIPMENT

• A 16-page catalog illustrates and describes *rolling gymstands* and includes a section on planning aids for gymnasium seating. *Wayne Iron Works, 844 N. Pembroke Ave., Wayne, Penn.**

• A report of the results of an extensive research study on the functional body measurements of school children for more effective planning and equipping of schools is contained in a 90-page book including illustrations and detailed charts. $1.00. *Nat'l School Service Inst., 27 E. Monroe St., Chicago 3, Ill.*

• A 28-page illustrated report, *Comparative Costs of Walls, Partitions and Roofs for School Buildings*, offers an analysis of the relative costs of typical sections of a school building composed of several representative construction materials. *National Lumber Mfgs. Assoc., 1319 Eighteenth St., N.W., Washington 6, D. C.*

FLOORING

• *Designs for Better Floors* contains full-color illustrations of available colors and patterns of *Terraflex vinyl floor tile* and includes suggested combinations and descriptions. *Johns-Manville, 22 E. 40th St., New York 16, N. Y.**

AIR CONDITIONING

• A 4-page folder on *Monobloc* centrifugal pumps used in air conditioning systems lists in table form a selection of pumps along with their ratings and capacities for approximate refrigeration tonnages and includes a specification chart.

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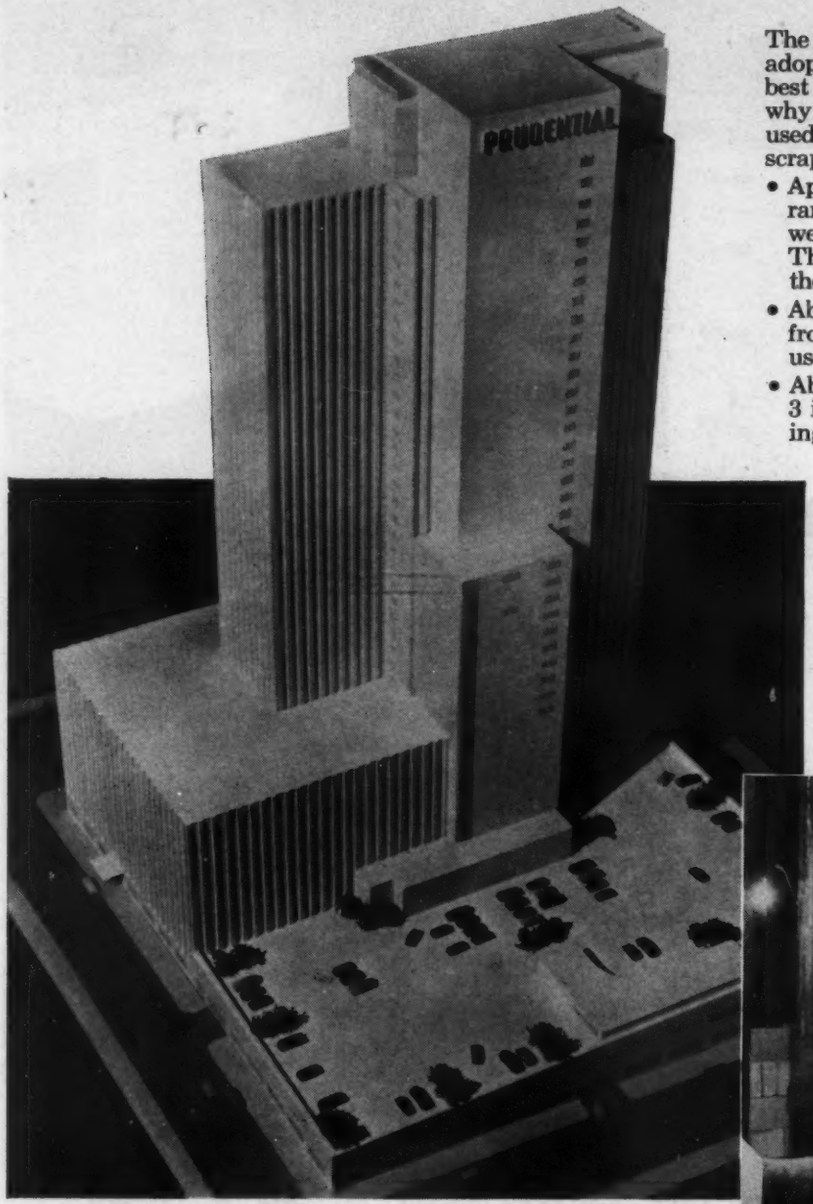
Prudential "takes out insurance" on safety and dependability with USS NATIONAL PIPE



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- Approximately 120 tons of National Seamless, ranging in diameter from 6 inches to 20 inches, were employed as air conditioning carriers. These "risers" run from the sub-basement to the top floors.
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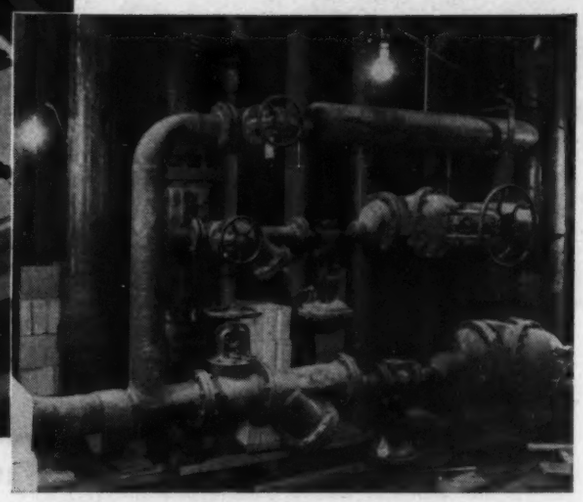

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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ABOUT THE PHOTOS **1.** Type BT unit with plenum base installed in school entryway. Duct work concealed in wall discharges heated air through wall grill. **2.** Type BF unit with plenum base recessed in masonry wall of supermarket. **3.** Type BT unit, ceiling-mounted in lumber company office and display room. **4.** Type BF unit with plenum base installed in church.

Modine
CABINET UNITS

C-1261

(Continued from page 138)

white oak is applied as a finish to both the inside and the outside of the auditorium proper, the expensive effect of these vast areas of vertically hung boards is not in fact borne out by the cost, for realising the potential expense, the architect specified ordinary 2¼ in. by ¾ in. white oak floor boards which were tongued and grooved in the normal manner with the exception that the top edge was milled, giving a pronounced shadow between the boards. The boards are hung as they would be set on a floor — in random sizes — so that the whole wall lining system was acquired for little more than the price of a normal floor.

Indeed the detailing of the entire structure is worthy of close study and it is the more interesting because it contrasts sharply with the prevailing poor standard of detailed design and workmanship in contemporary work in the U. S. A. The dome, for instance, is an independent form and has no contact with the structure of the auditorium. The necessary light and sound tightness has been achieved by most ingenious detailing and the junction between the two forms effected by flexible rubber separators. Similarly the small auditorium, located directly beneath the main room, required special attention since it had to be acoustically independent of the large assembly. Its ceiling is hung from the floor above via rubber-in-shear mounts and further insulated by a completely independent plaster ceiling sandwiched in the 3-ft gap between the floor and ceiling of the two rooms. The fact that no facilities for drama were required by the programme did much to determine the shape of the main structure, for the necessity of a stage-house would naturally have wrecked the present conception, but the theatre below the assembly is well equipped to handle small productions, and ample stage and dressing-room facilities appear to have been provided.

Finally I wish to allude to the structural problems which have confronted the architect and engineers during construction, and on which the main burden of ill-informed criticism has rested. This article is not the place to discuss in detail the technical problems which arose as work proceeded, in spite of the most careful and expert analysis by Amman and Whitney, the engineers. I do however wish to place on record that not only has the structural analysis been thoroughly justified in practice but that I have found the architect very willing to discuss his problems in most frank terms. Amendments to the design have been of a very minor nature and were introduced as a result of contingencies which could not have been foreseen in the design stage of such a revolutionary structure, and they in no way detract from the appearance of the building.

M.I.T. is to be congratulated on its farsighted policy of erecting buildings upon the campus which reflect a relentlessly enquiring, progressive approach to knowledge. This is particularly refreshing, for it contrasts vividly with the sterile eclecticism countenanced by many of the foremost schools in their recent building programmes. The completed project, which will comprise the auditorium, a small chapel of equally controversial design (now in the first stage of construction), a large open-air skating rink and a vast landscaped area, will be a notable addition to this great school; one that will take its place fittingly with the recently completed Aalto dormitory and the Anderson and Beckwith biology laboratories.

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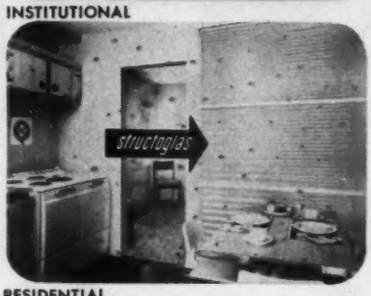

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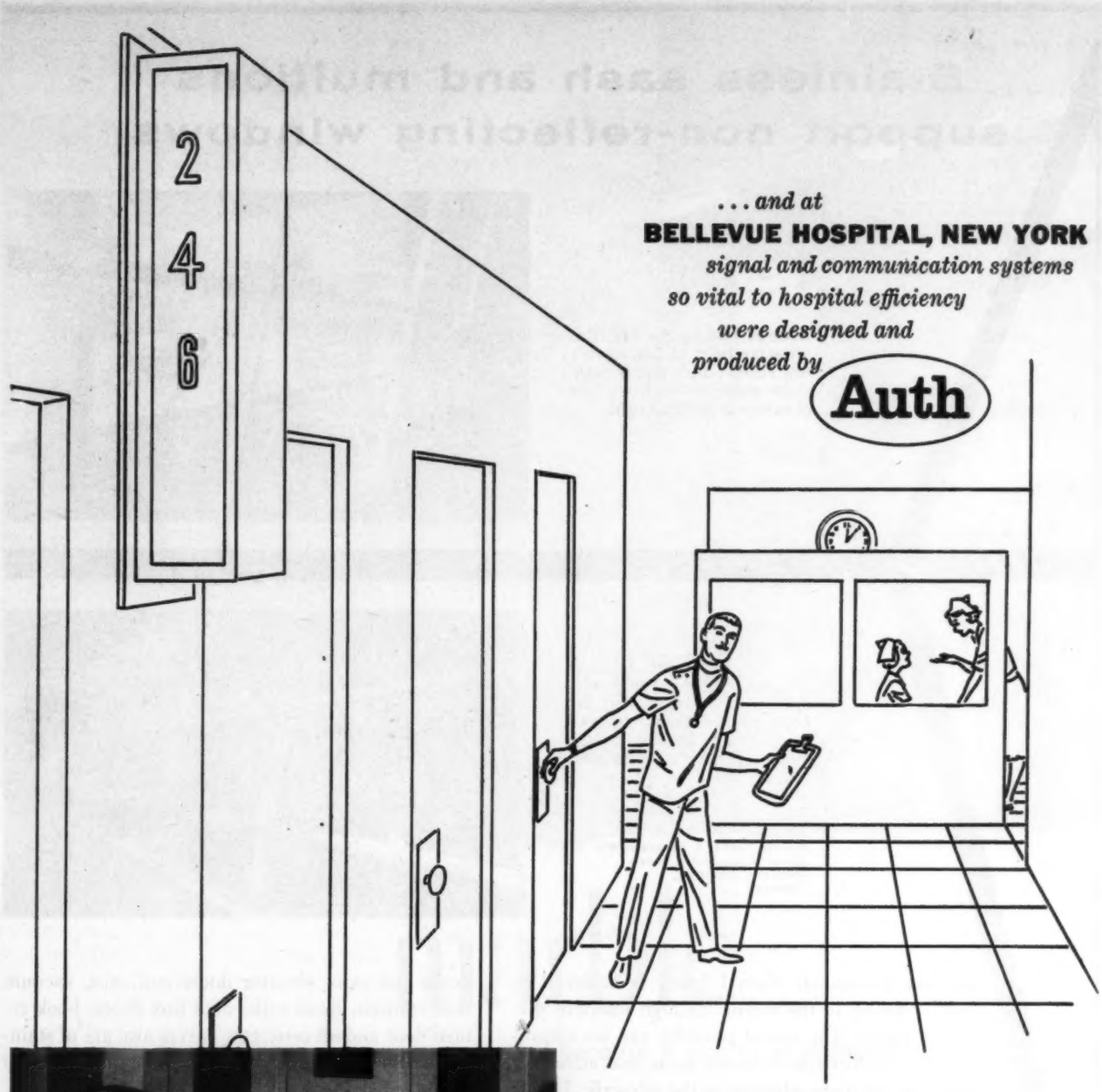

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SYSTEMS

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Windows fronting the first-floor browsing room of Cincinnati's new Public Library give through-vision under practically any kind of natural or artificial light.

The non-reflecting library windows from the inside. Note the continuous, stainless-covered mullions and stainless tubular struts supporting stainless sash.

Architects:
Woodie Garber & Associates and
Samuel Hannaford & Sons
Associated Architects,
Cincinnati

The new Cincinnati Main Library is designed to "sell" reading to the public through effective display of books. The casual passerby can see clearly into the comfortable browsing room and attractive book display room adjacent to the sidewalk. This is because of a large non-reflective window that makes through-vision possible under practically any condition of natural or artificial light.

All supporting members of this multiple-angle window are made of Armco Stainless Steel, as are mullions, sash, sills and heads of windows throughout the building. Entrance details, outside doors and door frames are of stainless steel, too.

On the interior, conveyor doors, dumb waiter doors and cabs, elevator doors and cabs, vacuum tube stations, hand rails, mail box doors, book return door and all convector covers also are of stainless steel. One subcontractor alone used 20,000 pounds of stainless steel in this building.

Stainless steel will serve this model library building economically. Exterior applications will resist the weather, never require painting and need little maintenance. On the interior, stainless steel will stand up under wear and tear because of its great strength—remain new-looking indefinitely.

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"Marble on this project was used not only for the exterior but throughout the entrance lobby, all elevator lobbies, as floor tile throughout the first floor corridors, and as toilet partitions in all toilet rooms.

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* *The equipment cost for a prefabricated Visionaire lighting system is, on the average, under five dollars per foot . . . a considerable saving on ordinary built-in cove lighting that provides neither the efficiency, nor the fine finished appearance of Visionaire.*

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THE RECORD REPORTS
WASHINGTON TOPICS

(*Continued from page 38*)

placed on the waiting list, a committee spokesman said.

Meanwhile, however, the House Education Committee appeared to be roused from its lethargy regarding Federal aid to school building and a subcommittee, headed by A. B. Kelley (D-Pa.), began drafting a committee measure. This broke a "deadlock" imposed when Chairman Barden (D-N. C.) delayed his consent to marking up a bill. He did conduct prolonged hearings during the spring months. With an overburdened record of pro and con statements and voluminous testimony in question and answer form, the Kelley subgroup began writing its own legislation and quick movement of the bill through full committee and on the House floor was expected.

At the same time, the U. S. Chamber of Commerce unleashed a protest aimed at discouraging any Federal action until the state and national conferences on education had been held. Following the White House conference (Nov. 30 and Dec. 1, 1955), the Chamber said, a better evaluation of need should be possible. The state conferences, and the national, "should clarify regional differences in definition and purpose which underlie all national statistics on education. These conferences then should lead to a much clearer picture of the needs and attitudes of the people of the 48 states on the matter of Federal intervention in state programs of school improvements, including classroom construction."

SENATE WRITES OWN TICKET IN ACTION ON HOUSING BILL

The Senate ignored vital portions of the Administration's housing recommendations for 1955 and on the plus side went all-out in giving Federal housing authorities more than they had asked for. However, there remained the stricter action in the House which was certain to tone down the Senate's action, and the prospect of a free-for-all trading spree in conference committee which might well bring the final version of the current housing measure in close proximity to the Eisenhower proposals.

While the Senate was more than liberal in most of its initial decisions on

(*Continued on page 276*)

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Providence Hospital, Oakland, Calif.

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You can be sure of *lasting* client satisfaction every time when you specify paints made with Dow Latex (STYRENE BUTADIENE) for exterior masonry surfaces. These modern paints look beautiful and *stay* beautiful for years.

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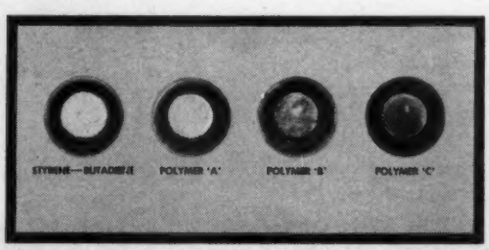

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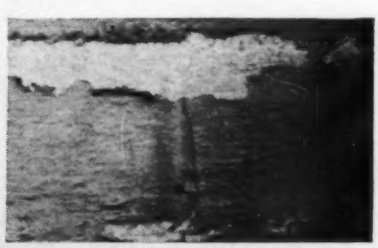

NO SUCH FAILURE! Properly prepared surfaces protected with latex paint won't blister and peel like this. They chalk gradually, are ready for repainting with a minimum of preparation.

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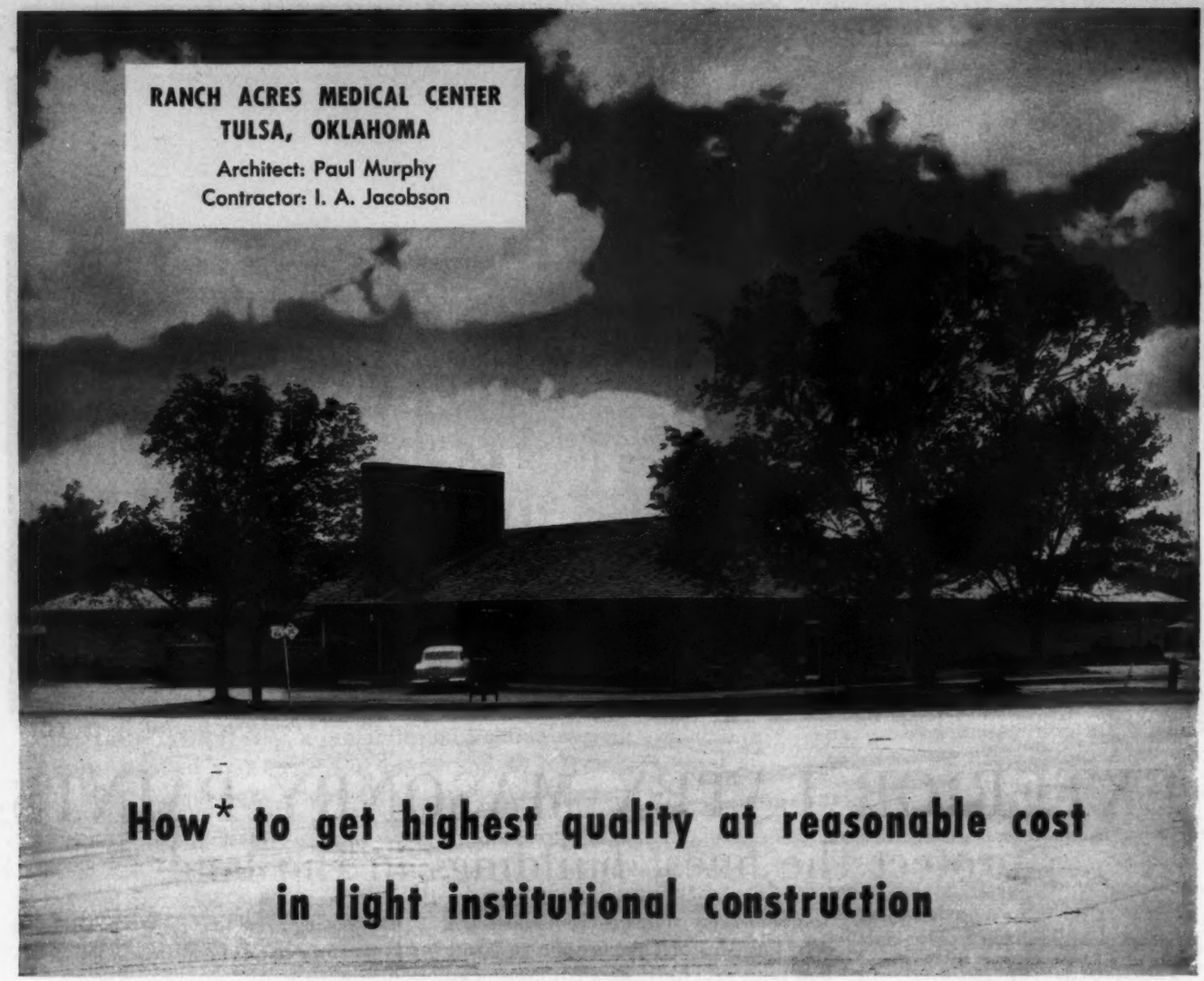

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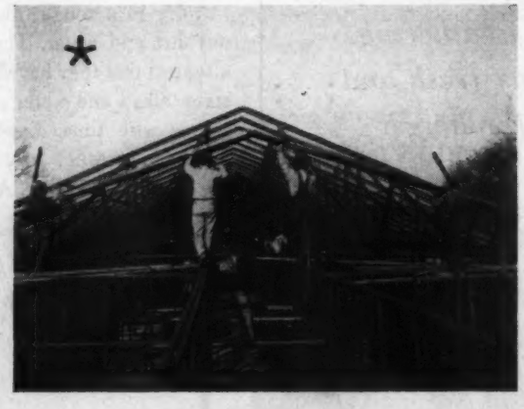

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Design fundamentals of the

ALL-AIR HIGH VELOCITY distribution system

By F. J. KURTH | *Vice President of Engineering*

Anemostat Corporation of America

A national survey reveals that today, more than ever, engineers are studying, learning and using high velocity-high temperature differential air distribution. Here is a brief discussion of the advantages of the all-air high velocity system over conventional and mixed cycle (air and water) systems.

1. No Coils—No Clogging—No Odor—There are no coils in the all-air high velocity units. Damp coils collect lint and emit dank odors, and the coils must be cleaned periodically.

2. No Individual Fans — Filters — or Electric Motors — The all-air units operate entirely with air which is processed in the main equipment rooms. The 100% induction units utilize the kinetic energy of the high velocity air to mix primary air with the room air.

3. No Conflict of Trades—The all-air units are installed by the sheet metal trades only.

4. More Effective Use of Outside Air in Spring and Fall—More primary air is delivered to the all-air units than to induction coil units. This allows the engineers to operate in the Spring and Fall on outside air and thereby save refrigeration.

All-air high velocity units offer scientific air diffusion. Each high velocity unit is provided with an aspirating or high induction type air diffuser which is scientifically designed to diffuse air without drafts. Each unit can be pressure balanced by an easy-to-operate balancing device and a calibrated orifice. In fact, the Anemostat all-air high velocity system can be balanced more accurately than other systems and in less than half the time required to balance a low velocity system.

High velocity units require practically no maintenance after installation. They have valves of the non-corrosive, die-cast, "rocket-socket" type, which are patented by the Anemostat Corporation of America. All units can be adapted for the following variations:

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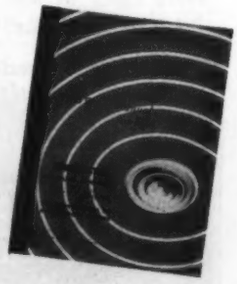
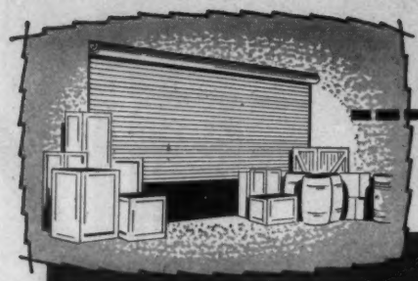
2. Dual duct for thermostatic control or any other type of control.
3. Single or dual duct units with the diffuser fastened to the unit, or remote from the attenuating unit.
4. Under-the-window, sidewall or ceiling type installations.
5. Can be provided with standard aspirating diffusers or 100% induction type diffusers.
6. Induction type units handle temperature differentials up to 33° below ambient.

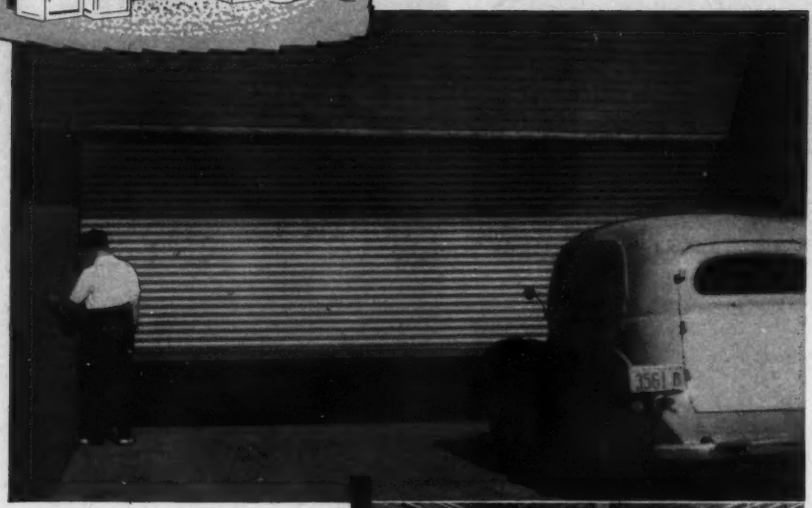
Selection Manual Contains Data on High Velocity Units



New Selection Manual 50 gives extensive selection and application data on high velocity all-air distribution systems. Write on your business letterhead for Selection Manual 50 to the Anemostat Corporation of America, 10 E. 39 Street, New York 16, New York.



save space



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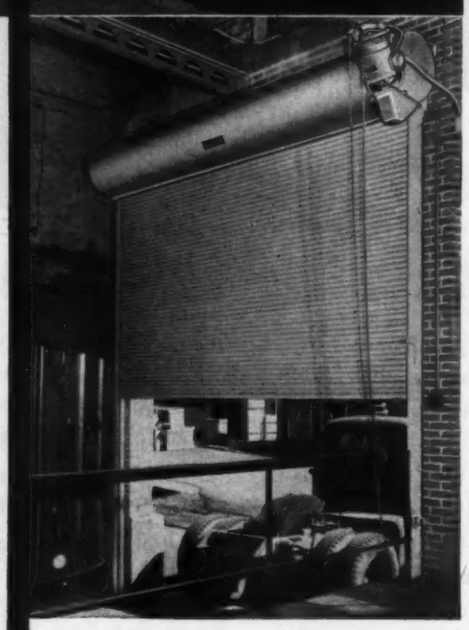
Kinnear Steel Rolling Doors



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THE RECORD REPORTS
WASHINGTON TOPICS

(Continued from page 272)

this year's program, it slapped down the Housing and Home Finance Agency on one crucial issue — disposition of the Home Loan Bank Board. Under jurisdiction of Housing Administrator Albert M. Cole's regime for many years, the Board was voted into independent status by the Senate, following its own Banking Committee's recommendations but flaunting the judgment of Mr. Cole. Senator Bush (R-Conn.) had planned to offer an amendment to keep the Board within HHFA but did not do so.

The long debate and Senate action on the public housing feature drew prime attention but was only one of many important moves affecting the nation's housing program.

On the public housing issue, where the President had asked for 35,000 units of public housing each year for two years, the Senate approved nearly 600,000 for four years, virtually returning the program to the basis established in the Housing Act of 1949. This large figure included 10,000 units per year authorized for elderly persons to be built with Federal subsidy. This would be a five-year program.

A vote adopting the Flanders amendment before the Capehart attempt to reduce the public housing figure to the Administration's proposal set a floor of 50,000 units per year which could be ordered at the President's discretion. In the nature of an "escalator" provision, the Flanders plan would authorize anywhere from 50,000 to 200,000 units per year, depending upon the economic situation. The President would make the decision after consultation with his economic advisers.

In view of the Administration's desire for a lower number of authorized dwelling units in the public field, it was expected that the 50,000 floor would become the ceiling, should the Senate's action stand.

Other features of the Senate-approved plan:

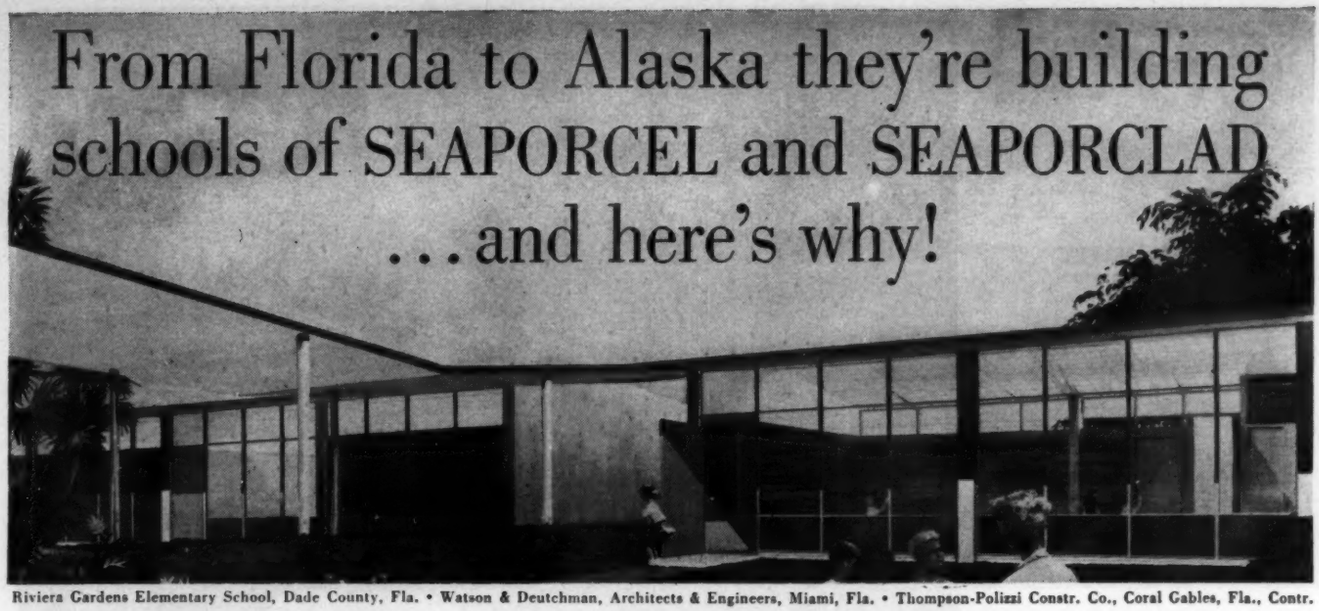
— Extend authority for Title I home improvement loans for five more years; raise the individual maximum loan amount from $2500 to $3000.

— Authorize FHA to insure loans up to $300,000 per park at a rate of $1000 per trailer space for trailer parks.

— Reactivate the coöperative housing program by returning to "estimated

(Continued on page 280)

From Florida to Alaska they're building schools of SEAPORCEL and SEAPORCLAD ...and here's why!



Riviera Gardens Elementary School, Dade County, Fla. • Watson & Deutchman, Architects & Engineers, Miami, Fla. • Thompson-Polizzi Constr. Co., Coral Gables, Fla., Contr.

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There was no "U" factor involved on this Florida job as contrasted with a recent Seaporcel installation at Ketchikan, Alaska, for the Ketchikan High School. In this latter case extremes of climate required a very low "U" factor so the Seaporcel porcelain was backed up with 3 inches of Fiberglas insulation resulting in a "U" factor not exceeding .079.

Seaporcel porcelain skins and Seaporclad laminated panels are your definite answer to economy, beauty of color, permanence, simplicity of design and speed of installation. Send us your plans and get our prices.

Panels measure 39" x 87" *Shown are panels 39" x 64"* *These panels are 39" x 21"*

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Ketchikan High School
Ketchikan, Alaska
King Street Elementary School
Port Chester, N. Y.
Industrial Canal High School
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Junior High School
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Temple Univ. Medical School
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Phoenix Memorial Bldg.—Univ. of Michigan
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Notre Dame High School
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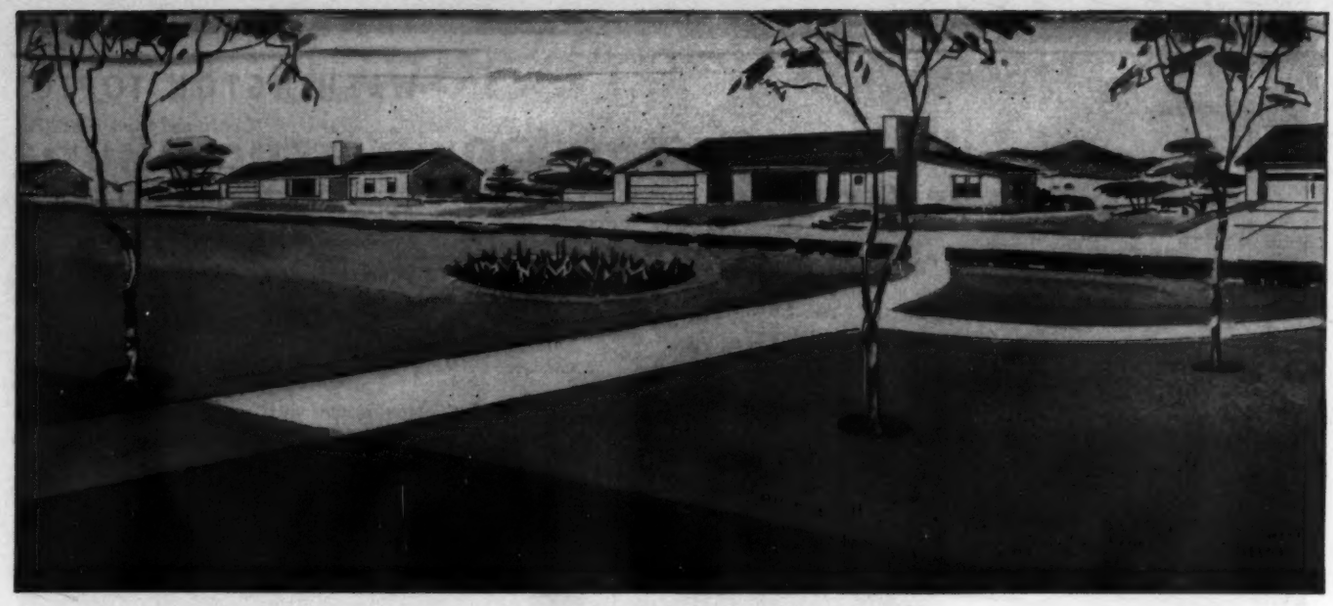
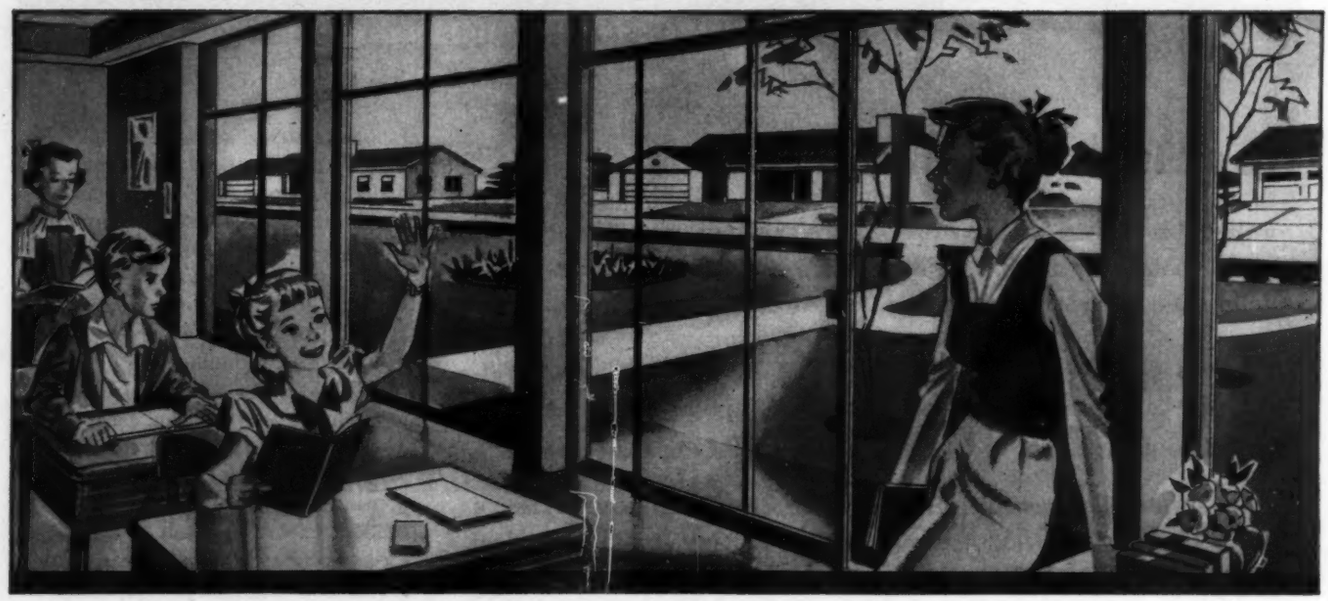


add all this room . . .



to this room for their sake

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DAYLIGHT WALLS

. . . THAT LET YOU SEE

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Write Lifetime Protection Into Your Specs Here

Specify Follansbee Terne

Vulnerable points of all roofs need the positive protection offered by a metal of *proven* ability—that's Follansbee Terne. Only Follansbee Terne can give you these *exclusive* advantages:

1. **The High Tensile Strength of Steel.** Tough, won't peel or crack.
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3. **A Low Coefficient of Expansion.** No need for expansion joints.

Follansbee Terne will permit you to create many unusual design variations . . . it is architecturally correct for any style and is ideal for roofs of the lowest pitch. Best of all, Terne can be painted any color—any time.

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If you do not have Follansbee Terne Roofing Specification and installation details, we will be glad to send them to you.

Write for information about our new pan former and seamer which make standing seam Terne roofs economical.

Follansbee Terne is Carried in Stock by Leading Sheet Metal Distributors Everywhere.

FOLLANSBEE STEEL CORPORATION

General Offices, Follansbee, West Virginia

Cold Rolled Strip
Seamless Terne Roll Roofing
Polished Blue Sheets and Coils

Sales Offices in Principal Cities

THE RECORD REPORTS

WASHINGTON TOPICS

(Continued from page 276)

replacement cost" instead of "value." Federal National Mortgage Association, the secondary market operation, could make advance commitments to buy coöp mortgages up to $50 million ($5 million in any one state) under the Senate version.

— Increase FHA's general mortgage insurance authorization by some $4 billion; also covering FHA activity up to the aggregate of outstanding insurance liability and commitments as of June 30, 1955.

— Increase maximum FHA-insurable loans on multifamily housing from $5 million to $12.5 million.

— Increase authorization for slum clearance and urban renewal by $212,500,000 on July 1 this year, and by another $212,500,000 on July 1, 1956. The President would be authorized to increase this at any time by another $100 million.

— Permit financial assistance from Federal sources for development of vacant areas for industrial purposes.

— Establish a revolving fund for planning advances for non-Federal public works. The Senate eliminated the July 1, 1957 expiration date for this program, making it a continuing one.

— Revive the public facilities loan program on an operating basis with a revolving fund — $100 million ceiling.

— Increase total ceiling on college housing loans from $300 million to $500 million; extend program to cover cafeterias, dining halls, student centers, infirmaries and "other essential services," but not gymnasiums and stadiums.

— Set up a $1350 million military housing program with FHA-insured mortgages covering 100 per cent of replacement cost, or the lowest acceptable bid, whichever is lesser.

— Authorize a new smoke elimination and air pollution program with four-year research contracts with private interests (no dollar limit). This would include grants to public and private agencies for research, training and demonstration projects. HHFA could loan to business installations for installation or construction of pollution eliminating devices.

— Reactivate the Department of Agriculture farm home loan program embracing both direct and insured types of loans, and extend it one year.

(Continued on page 284)

Lowell

SOUND DISTRIBUTION EQUIPMENT

Whatever the type of sound installation or application, there is only one line of sound equipment that has proven itself consistently superior . . . the Lowell line. Because of this clear superiority, Lowell "Ear Level" Sound Distribution Equipment is now found in more large installations than any other kind. Only Lowell offers such a complete line of scientifically correct speaker baffles, enclosures, grilles and accessories.

When you specify Lowell — the *complete* line of "ear level" sound equipment — you recommend the line *preferred* by architect and acoustical engineer alike.

AL series flush mounting low ceiling baffles afford 360° dispersion of distinct low level, "ear level" sound. Floating conical diffuser is mounted on rubber grommets. Baffle made of heavy gauge aluminum spinnings; sizes to accommodate 6″ to 15″ speakers.

XCP PROTECTIVE ENCLOSURE

CP PROTECTIVE ENCLOSURE

Protective enclosure line includes CP Series for new construction and XCP Series for existing construction installations. Spot welded steel construction, with rust preventive coating, protects speaker from fire, dirt, rodents. Heavy interior undercoating prevents metallic resonance. Designed for easy installation in wall or ceiling.

Complete information on the *Lowell* line — world's most widely-used line of sound installation equipment — will be *sent immediately* upon request.

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see our catalog in S or write for copy

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How to Conserve School Budgets with Multiple Heating Units

Packaged gas-fired units provide low-cost, zoned comfort with forced warm air heat.

1. unit room conditioner

The conditioner, sitting on a plenum, is located along an outside wall and backed up to a partition wall. Warm air is discharged from the top outlet grille across the outside wall and windows. Fresh air and recirculation air enters through the floor plenum.

This is a very inexpensive application. If desired, ducts can be extended into adjoining classroom and both rooms heated by one unit.

2. enclosed room conditioner

A deluxe type of installation with the same design features as one above. A ventilated closet completely encloses the conditioner. Combustion air is ducted into closet from outside. This concealed tamper-proof installation is extremely quiet in operation.

3. overhead room conditioner

A Janitrol Horizontal Conditioner is suspended from the ceiling. Warm air is directed parallel to outside walls and across glass areas. A built-in centrifugal blower provides quiet air circulation. This unit is also approved for installation with duct system.

This particular unit requires no floor space and is installed without duct work. Capacities available from 65,000 to 150,000 Btu/hr. inputs.

4. suspended heaters

Small, economical propeller-type heaters are installed overhead in this gymnasium. The small amount of propeller fan noise is not a factor here. An ideal system for intermittent occupancy areas, where installation cost is of prime importance. During unoccupied periods, minimum temperatures can be maintained automatically . . . an advantage common to all these models.

5. central forced warm air system

A heavy duty, forced warm air furnace distributes heat from a central furnace room through a duct system. In larger schools, remote rooms occupied intermittently, and less economically heated by a central system, may be efficiently handled by individual room units.

A central-type system of proven success. Temperature control can be zoned for different activity areas. Furnaces are factory assembled and tested . . . 250,000 to 1,750,000 Btu/hr. input capacities.

MORE INFORMATION?

These are just a few of the successful installations on file at Janitrol. If you would like additional ideas on low cost installations of Counter-flow Conditioners in perimeter heating systems, or specifications, please write. There's no obligation.

Janitrol

Janitrol Heating & Air Conditioning Division
Surface Combustion Corporation, Columbus 16, Ohio
In Canada: Alvar Simpson Ltd., Toronto 15

ALSO MAKERS OF *Surface* INDUSTRIAL FURNACES AND *Kathabar* HUMIDITY CONDITIONING

Features that make an ideal SCHOOL window

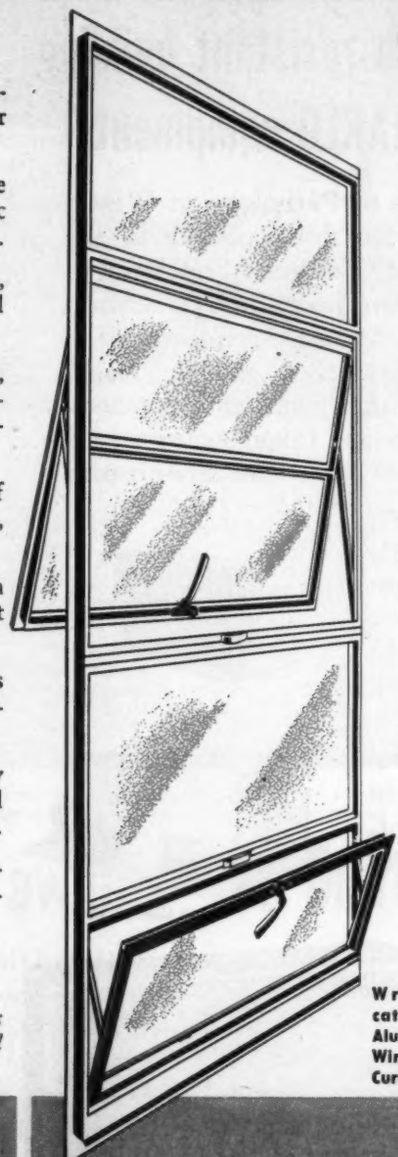
Bayley

aluminum projected windows*

(Same type also available in steel)

UTILITY

- Offers the ideal combinations of natural daylight, ventilation and visibility for any need.
- Well suited to any type of architecture or construction. Also forms the basic element in Bayley Curtain Wall Systems.
- Easily installed in prepared openings, and readily adaptable to all curtain wall construction systems.
- Permits use of draperies, shades, curtains, venetian blinds, or various combinations of window accessories, with minimum interference.
- Positive, direct-action hardware of quickly apparent operation . . . No gears, cranks, or complex mechanism.
- Refreshing all-weather air circulation provided by awning-type ventilators that shield opening against rain.
- Draftless, indirect air circulation is provided through fully adjustable projected-in ventilators.
- Exterior of entire window easily washed from indoors. Ends the hazard of having to wash windows from outside.
- Screening easily accomplished. Projected-out ventilators screened inside; projected-in units screened outside.



CONSTRUCTION

- Extra deep sections — ample even for Thermopane or Twindow glazing up to ½-inch thick.
- Thicker, sturdier, aluminum sections, made especially for windows give extra strength, rigidity, durability.
- Full 1⅝" ventilator sections, with double contact surfaces parallel to face of window, assure weathertight closure, minimum air leakage.
- Frame and ventilator corners are accurately coped, tenoned, and riveted, for lasting ruggedness and accuracy of fit.
- Ventilators operate on sturdy balance arms connected to sliding friction pivots having non-abrasive shoes with compression springs sealed against dirt.
- Rugged streamlined hardware with easy-grip white bronze handles. Hardware securely attached with stainless steel screws.
- Full ⅝-inch wall engagement provides greater security and rigidity in any type of construction.
- Provision for bed and face putty outside leaves flat, easy-to-clean surfaces inside — the mark of a truly quality window.
- Ventilators glide smoothly and easily, hold at any position, and are not affected by moisture, warping, or sticking.

See Bayley in Sweet's. Complete catalogs on aluminum windows, 16a/Bay; steel windows, 16b/Ba.

Write TODAY for catalogs on Bayley Aluminum and Steel Windows and Bayley Curtain Wall Systems.

QUALITY APPROVED P-A2

76 Years of RELIABILITY

***BAYLEY CURTAIN-WALL SYSTEM**

The Bayley Intermediate Projected Window is the basic element in the Series 150 Bayley Curtain Wall System. It is also built into separate prefabricated panels composed of deep-sectioned framing members in the 450 series.

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Springfield, Ohio

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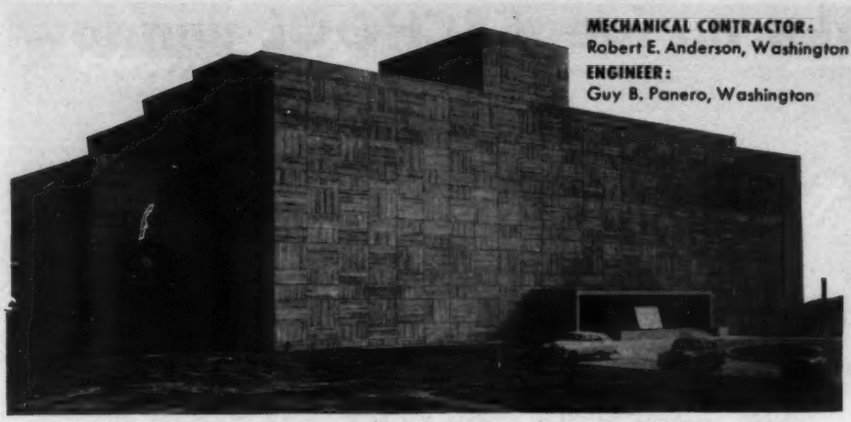

MECHANICAL CONTRACTOR:
Robert E. Anderson, Washington
ENGINEER:
Guy B. Panero, Washington

Washington's first A-bomb resistant building air conditioned with MARLO equipment

The new Armed Forces Institute of Pathology at Walter Reed Army Medical Center is the first building in the Washington, D. C., area expressly designed and built to withstand an atom-bomb explosion. The 21-inch thick walls of this huge block-type structure can resist pressures up to 27.2 pounds per square inch. Specially designed "blast" doors four and one-half inches thick guard all entrances. Inside, extraordinary precautions are taken against accidents from hazardous materials used in medical experiments.

This unique building is air conditioned with Marlo equipment, including eight Spray Type Dehumidifiers with Cooling Coils, four ceiling-type Air Handling Units, 45 floor-type Remote Air Handling Units, and 78 Heating Coils.

Whatever *your* air conditioning problem, you'll find the answer in the quality line of Marlo equipment. Write to Marlo today for complete information.

Heating Coil

Air Handling Unit

Spray Type Dehumidifier

Remote Air Handling Unit

SEE OUR BULLETIN IN SWEET'S CATALOG

Marlo COIL COMPANY

Manufacturers of COOLING TOWERS • EVAPORATIVE CONDENSERS • INDUSTRIAL COOLERS • AIR CONDITIONING UNITS • MULTI-ZONE UNITS • BLAST HEATING & COOLING COILS

Saint Louis 10, Missouri

THE RECORD REPORTS

WASHINGTON TOPICS

(*Continued from page 280*)

SENATE GROUP CONSIDERING MILITARY BUILDING PROBE

The watchful eye of the Senate Appropriations Committee turned on military construction programs, with special attention to Air Force base development in the United Kingdom. Mindful of the flurry of controversy in past years over construction in French Morocco and elsewhere, the committee considered an investigation of military construction in general. This would include the organization and the methods for executing building programs.

The issue was raised by Senator Dennis Chavez (D-N. Mex.), chairman of a Senate Appropriations subcommittee hearing the Defense Department request for construction funds for fiscal 1956. He said his group had been informed frequently of "certain irregularities or deficiencies in the construction relationships between the programming elements of the military departments and their construction agents."

Senator Chavez complained that the Senators have been called up to provide funds without seeing a "clearly defined program." The committee has subsequently been required to spend much time and effort in reviewing program details as they were developed, he charged.

Reviewing criticisms he said have reached the committee, Senator Chavez said:

"An example of the type of thing the committee hears from time to time is a recent report on possible waste and inefficiency in the execution of the Air Force construction program in the United Kingdom. This report alleges that facilities are planned at several levels and plans are passed from one to another in such form as to be completely valueless and unusable. It is alleged that between $10 million and $15 million is wasted in this needless repetition of planning and much greater sums have been wasted in trying to execute these imperfect plans.

"It is alleged that structures have been built without utilities to support them; buildings have been built for which no specific requirement exists; buildings have been built that are much larger than required; and buildings have been built which are non-operational

(*Continued on page 288*)

Veranda coverings of Bethcon galvanized steel sheet harmonize with the modern lines of other elements in Marineland oceanarium at Palos Verdes, California. *Architects:* Pereira and Luckman, Los Angeles.

Galvanized steel "awning" at Marineland oceanarium

Fabulous is the word for Marineland, world's largest oceanarium at Palos Verdes, California. Two deep-water tanks give enthralled spectators a natural-habitat view of more than 30,000 specimens of marine life, from four underwater viewing levels. An amphitheatre on the top floor seats 1500 visitors as they watch agile porpoises leaping for their dinner.

Entrance foyer and long verandas are pleasantly shaded from strong sun by roofs of Bethcon continuously-galvanized steel sheet. Fabricated for Marineland by Pacific Iron and Steel Company, Los Angeles, Bethcon was specified by the architects for the attractively unusual note it strikes.

Bethcon is zinc-coated in Bethlehem's modern continuous galvanizing lines. Continuous galvanizing produces a zinc coat that will take severe forming without flaking or peeling. Spangles are brighter and more uniform.

Bethcon gives the architect greater freedom than hand-dipped sheets, because continuously galvanized sheets can be furnished in coils as well as in cut lengths. Bethcon comes in a range of widths from 18 in. to 48 in., in gages 16 and lighter. Our nearest sales office will be glad to discuss Bethcon with you in terms of one of your current commissions.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

This Flexachrome Vinyl Plastic-Asbestos Tile Floor makes a wonderful basketball court for the Gunnery School, Washington, Conn.

For a floor that

scores high on every count

. . . specify Flexachrome!

Don't take a chance with "substitute" flooring . . . when your clients are *sure* to win with Flexachrome.

Flexachrome is the ultimate in vinyl-asbestos resilient flooring. Comfortable to walk on, play on. So durable and long-wearing, your clients will be certain that the two "e's" in Flexachrome stand for *double economy*.

And, if you want colorful beauty, Flexachrome will give it to you the way you like it. Take your choice of 23 sharp, clear colors that won't dim with the years.

For basketball courts use 3/16" Flexachrome for added resiliency and extra wear.

In food areas you'll want Flexachrome for its *greaseproof* qualities, too . . . its resistance to acids and alkalies.

And this close-textured tile really gets the nod from janitors when it comes to *easy cleaning*. Simple sweeping and occasional washing is all that's needed.

So specify Flexachrome for schools . . . from entrance to class rooms, from cafeteria to corridors, from library to labs.

This modern flooring will improve a school's appearance and save maintenance dollars year after year.

Ask your Tile-Tex Contractor to give you complete information and free estimates on Flexachrome and other Tile-Tex Floor and Wall Products. You'll find him listed in the classified telephone directory. Or write:

THE TILE-TEX DIVISION, The Flintkote Company, 1234 McKinley Avenue, Chicago Heights, Illinois

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The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada

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Manufacturers of Flexachrome...Tile-Tex*...Tuff-Tex*...Vitachrome*...Holiday†...Modnar†...and Mura-Tex*.*

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the greatest drain development in years!

Josam

SUPER-FLO

FLOOR DRAINS

(PATENTED)

VIEW OF SECTION OF TOP OF Josam SUPER-FLO DRAIN showing perimeter slots in addition to center slots.
VIEW OF SECTION OF TOP OF STANDARD DRAIN showing slots only in the center of drain top.
JOS
Josam SUPER-FLO Drain with 7" top
gives the same or greater flow rate and can be used instead of a
STANDARD DRAIN with 9" top

Through Josam pioneering, a great new advancement in drains is presented to the industry

Perimeter slots increase free area of top and permit greatly increased flow rate (GPM).

Standardized bodies permit interchangeability of grates, sediment bucket, round or square brass tops, etc.

Size and number of weepholes provide positive double drainage action.

Constant flushing is obtained by drainage flowing over inside surface of body.

Flat surface of shallow sloped flange eliminates bending or pre-forming water-proofing.

Female threaded outlet, standard. Inside caulk, optional.

GREATER FLOW. Josam SUPER-FLO Floor Drains are designed with perimeter slots in the grate which increase the free drainage area of the top and permit greater flow into the drain. In SUPER-FLO Floor Drains, waste water enters the drain *at the very edge* of the drain top instead of flowing over the wide rim of conventional drains before it reaches the grate openings. Because of this, water friction loss in Josam SUPER-FLO Drains is greatly reduced, and the flow rate (GPM) into the drain is greater than the flow rate in standard drains of the same or larger size top.

SAVINGS IN COST. Because of the increased flow rate in Josam SUPER-FLO Drains, a smaller top size Josam SUPER-FLO Drain can be installed to service the same drainage condition as a larger top size standard floor drain.

GREATER SANITATION. Since waste water enters Josam SUPER-FLO Drains through slots at the very edge of the rim, the water flows over the inside surface of the drain body, thereby constantly flushing the inside walls and keeping the drain body free from an accumulation of foreign deposits.

GREATER INTERCHANGEABILITY. Josam SUPER-FLO drains permit various styles of grates and tops, buckets and other features to be added or substituted even after drain is on the job. This also effects an economy in case of alterations in specifications or future requirements because of change in operations.

Josam SUPER-FLO Floor Drains set a new standard for quality and service wherever drains will be specified and used. Get the complete details by sending coupon below.

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the NEW ROTO-GLO® Quiet Switch

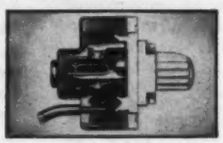
. . . because switches should be seen . . . not heard

Here is a switch that combines advanced mechanical features with modern interior design.

ROTO-GLO is primarily a functional switch. Its all-enclosed plastic body and non-oxidizing silver alloy contacts assure years of trouble-free performance. Can be used to full current rating on incandescent and fluorescent lamp loads.

Your most discriminating clients will like ROTO-GLO's whisper-quiet operation . . . the luminous knob that pinpoints the switch in the dark . . . the modern "off-on" knob (turns like a radio or television knob). They'll also like ROTO-GLO's clean, functional design . . . visible evidence of a quality wiring system.

WRITE Dept. AR-1 for the complete ROTO-GLO story.



Available in P&S Despard Type for combination wiring, and conventional strap type.

Rating:
P&S Despard Type, 15A, 120V AC, 277V AC.
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THE RECORD REPORTS

WASHINGTON TOPICS

(*Continued from page 284*)

because they will not accommodate the equipment which was intended to be installed in them."

In view of these charges and the questions on military public works construction raised over recent years, Senator Chavez said he felt the committee should "conduct a comprehensive survey of this whole area."

His remarks were addressed directly to Lyle S. Garlock, Assistant Secretary of the Air Force for Financial Management, who was testifying on the Air Force budget. Senator Chavez supplied him with details on the charges concerning the United Kingdom program, he said, "so that you can go to work on the problem."

HOOVER WAREHOUSE STUDY URGES PRIVATE BUILDING

A Hoover Commission task force called upon the Department of Defense and the General Services Administration to consider private industry construction and operation of warehouse facilities "in accordance with precedents already established."

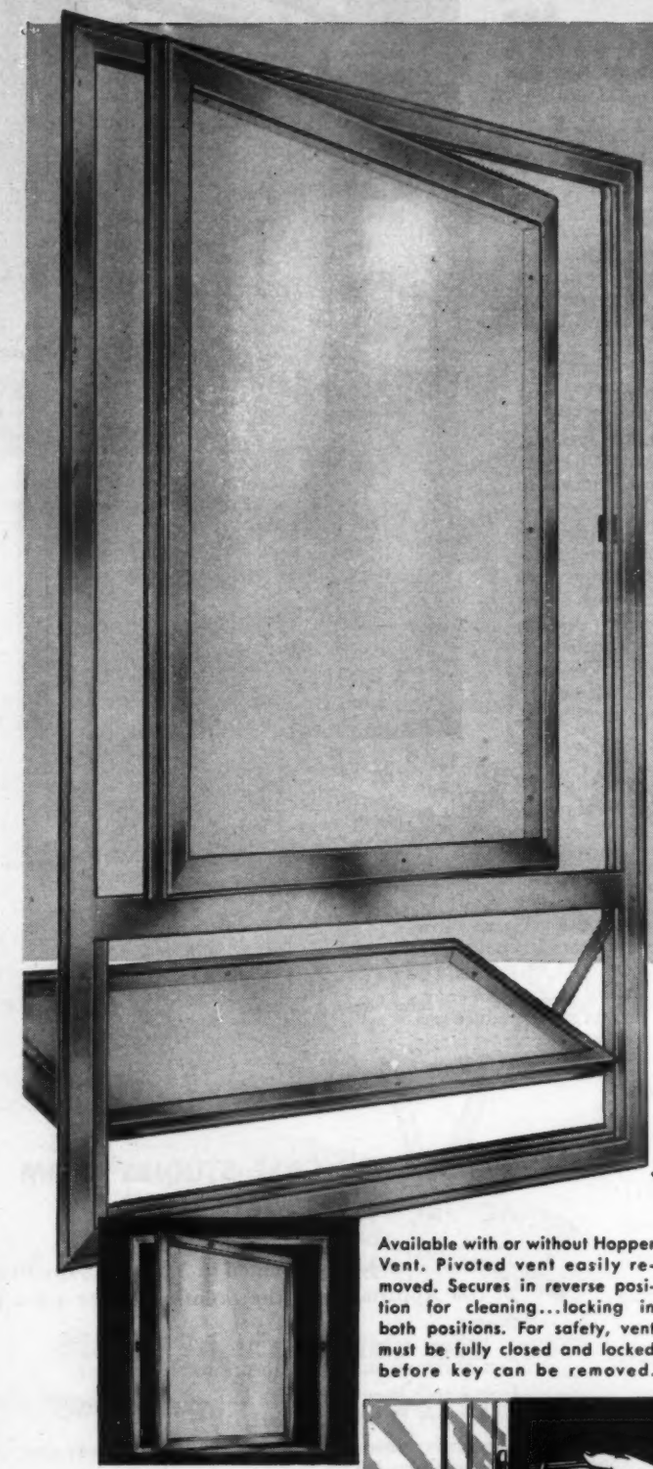
The Federal government can eliminate 172 million sq ft of warehousing through coördination, cross-servicing and modern management methods, said the (Hoover) Commission on Organization of the Executive Branch of the Government. Virtually all the "excess" warehousing space falls under the Defense Department. Altogether, Uncle Sam's warehouse and storage space covers 31,000 acres and costs around $3.5 billion annually to maintain. Of this cost, $2.9 billion was attributed to the military services.

The special task force found that administrative deficiencies arise out of faulty and mostly outmoded management systems and obsolete legislation. In consequence, said the task force report, there is a great excess of storage space, duplication and waste in the Department of Defense. Each of the three military services possesses its own independent storage systems. The facilities often are in close proximity with each other.

Effective control of construction, location, and use of the depot space was called a major management problem.

(*More news on page 304*)

For modern multi-story buildings...



REYNOLDS 100 SERIES

Vertically pivoted

ALUMINUM WINDOWS

This window meets both the design requirements and the special functional needs of today's multi-story buildings. It provides the minimum air infiltration important in air conditioning, and the positive locking essential to safety. Yet this airtight window is easily opened for washing entirely from the inside. Special jamb design accurately positions window in fully closed and washing positions. All-welded frame construction has self-draining feature. Manufactured to architect's size requirements. Write for catalog. **Reynolds Metals Company**, Window Division, 2020 South Ninth Street, Louisville 1, Kentucky.

New Equitable Life Building, San Francisco, features Reynolds 100 Series Aluminum Windows. *Architects:* Loubet and Glynn, San Francisco. *Consulting Architect:* Irwin Clavan, New York. *General Contractor:* Dinwiddie Construction Company, San Francisco.

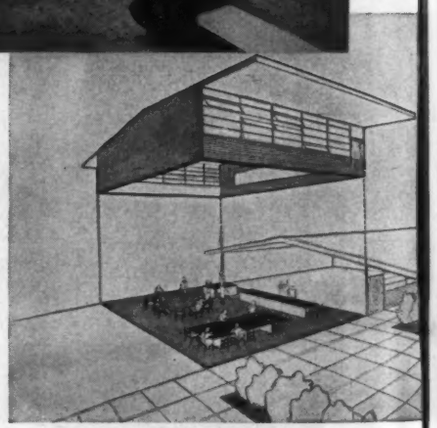
Available with or without Hopper Vent. Pivoted vent easily removed. Secures in reverse position for cleaning...locking in both positions. For safety, vent must be fully closed and locked before key can be removed.

REYNOLDS ALUMINUM

BUILDING PRODUCTS

"A REAL CONTRIBUTION TO SCHOOL PLANNING LITERATURE" John Lyon Reid

TOWARD BETTER SCHOOL DESIGN by William W. Caudill



So complex is today's task of designing a good school that architects need planning information that goes beyond physical considerations into the social, economic and cultural forces which affect the school system. At the same time they need practical information that offers concrete solutions to planning problems that they are encountering daily.

TOWARD BETTER SCHOOL DESIGN contains this vital information. Working from his immediate experience, William W. Caudill successfully relates school design to the aims and methods of education, to the influence of environment on the learning process, and to the role of schools as community institutions. He shows how the planner must assess every factor, weigh each one, and plan an architectural solution to his specific educational, economic and environmental problems.

William W. Caudill is eminently qualified to render aid and advice on the task of planning schools and school building programs. In his twenty-year school planning career he has won an international reputation for combining a practical approach with exciting creative vision. As research architect at the Texas Engineering Experiment Station of Texas A. & M., he pioneered studies of classroom shapes and sizes as related to physical and emotional environment, and formulated many of the basic principles upon which good schools are being built today. During the last four years he has designed over fifty schools and has lectured and served as a consultant throughout the United States.

Education and Enviroment: Caudill demands that a good school must be designed from the inside out, and "every idea, every material, every dollar related to the needs of the pupil." What are the physical and emotional needs of the pupil? How does the learning process affect the form of the building? What is the best physical and emotional environment in terms of room shape and size, fenestration, ceiling height, light, color, textures, acoustics, ventilation, landscaping?

Economy: Caudill attacks the problems of costs head-on. He clearly differentiates between "low-cost" schools and "economical" schools, and quotes actual cost figures to illustrate his points. He explains how to set up a cost-control plan, and how total costs are affected by land, shape and size of building, materials, structural frame, construction methods, space allocation, and service equipment. He compares prime and maintenance costs to show how "saving" on one may produce serious loss on the other. Finally, he discusses the proper timing of bid-letting as a cost-cutting tactic.

SEVEN EXTENSIVE SECTIONS

the PUPIL and the school plant
EDUCATION and the school plant
ENVIRONMENT and the school plant
ECONOMY and the school plant
CITY PLANNING and the school plant
the DIVISION OF SPACE for effective education
the PLANNING PROCESS and the school plant

91 SPECIFIC CASE-STUDIES FROM ACTUAL PROJECTS

Each case study is presented in 3 parts: 1) the Problem, 2) the Approach, 3) the Solution. Here are a few of them:

Can boiler rooms have educational functions?
How can a very small site located in enormously expensive property be best utilized?
Can improvements in the appearance and economy of hardware be made?
Can corridors be used for educational purposes?
What is a good way to provide easel painting in Kindergarten?
Can a school library be designed to serve the community?
Can toilets be designed to minimize control problems?
Can open type corridors be used successfully in Northernmost areas?
Can low budget gyms be lighted by natural means effectively?
Can improvements be made on combination of cafeteria service with other school functions in an elementary school?
Can a highly compact school plant have decentralized classrooms?

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Send my copy of ***TOWARD BETTER SCHOOL DESIGN*** immediately. Within 10-days I shall send you $12.75 plus postage or return the book without obligation.

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288 pages, 8¾ x 11⅝", 400 illustrations, $12.75

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THIS STEEL JOIST has all the delays to building progress designed out and all the convenience and greater speed of nailability designed in. Think of the labor hours and accessory materials you save in every square foot when you specify Macomber Nailable Steel Joists. Our Steel Joist Catalog shows four types to meet specific needs. Send for it.

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STRUCTURALS

THE RECORD REPORTS

BUILDINGS IN THE NEWS

(Continued from page 11)

1955 A.A.S.A. Winners:

Honorable Mentions

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Equal awards; numbers identify only

CONCEALS UNSIGHTLY CEILING
LIGHT SOURCE
DIFFUSED, GLARELESS LIGHT THROUGH CORRUGATED PLASTIC THAT ROLLS BACK
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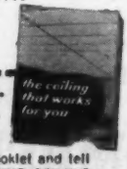

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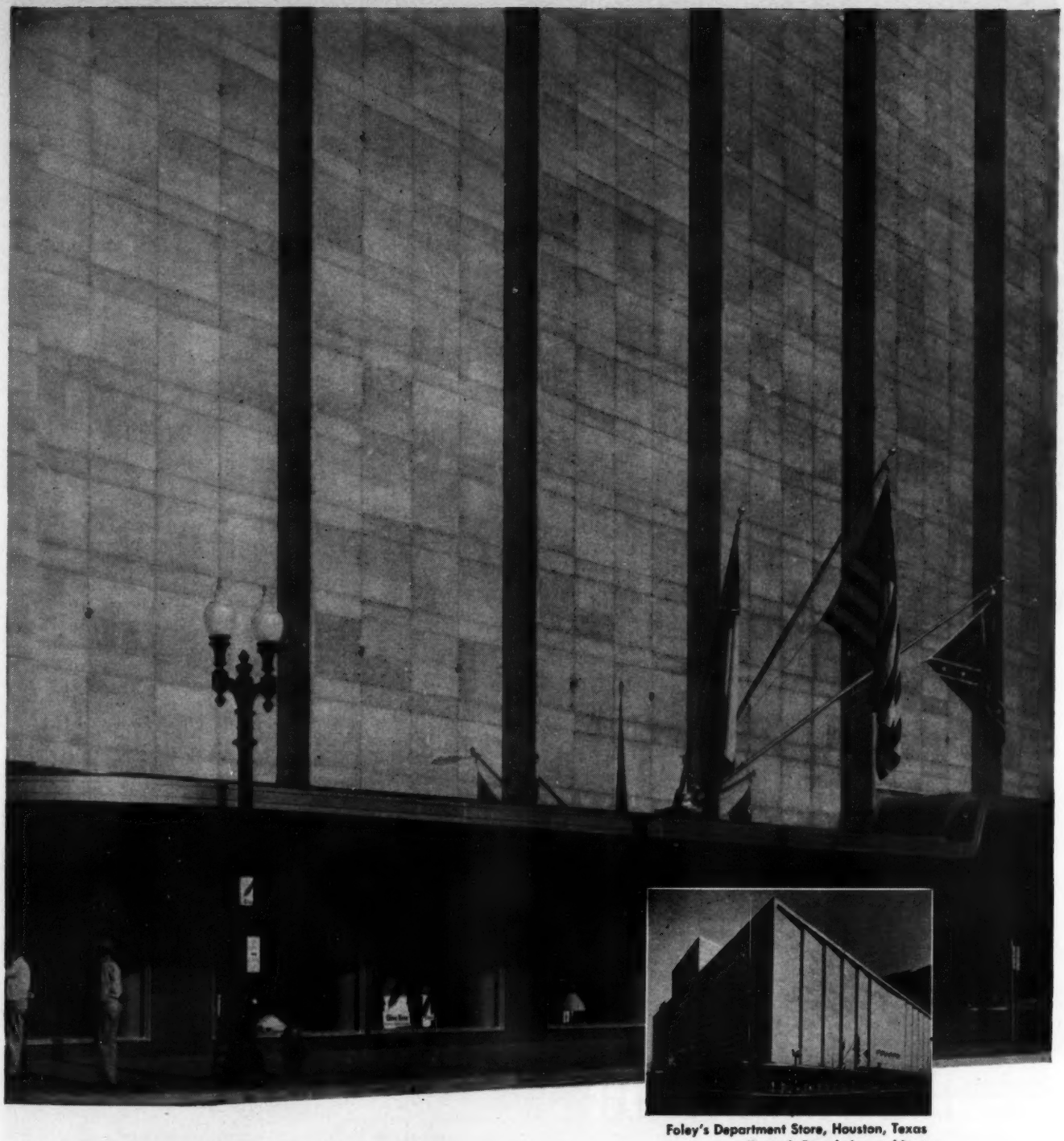
(for the American Institute of Architects) Charles Colbert of New Orleans; John McLeod of Washington, D. C.; and Max Flatow of Albuquerque, N. M.

CLEVELAND — (for the National Council on Schoolhouse Construction) Wilfred F. Clapp, assistant superintendent, State Department of Public Instruction, Lansing, Mich.; John H. Herrick, head, School Plant Division, Ohio State University, Columbus, Ohio; R. H. Wilson, superintendent of schools, Alpena, Mich.; (for the American Institute of Architects) Alonzo J. Harriman of Auburn, Me.; Carl W. Clark of Syracuse, N. Y.; and Lauren V. Pohlman of Elizabeth, N. J.

(Continued on page 296)



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Kenneth Franzheim, architect

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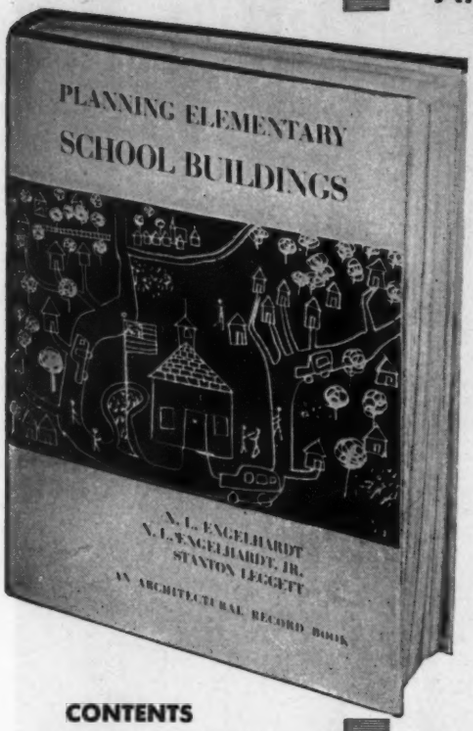

planning elementary school buildings

by N. L. Engelhardt, N. L. Engelhardt, Jr., and Stanton Leggett

CONTENTS

WHAT MODERN EDUCATION LOOKS LIKE

CLASSROOMS
Classroom Activities • Elements of the Classroom • Auxiliary Classroom Facilities • Service details for the Elementary Classroom

SPECIALIZED EDUCATIONAL SPACES
Library • Assembly and Community Room • Playroom • Lunchroom • Multi-Purpose Room • Outdoor Educational Areas and Site Planning

VISION, LIGHT, COLOR

AUXILIARY ROOMS
Administrative Spaces • Teacher Spaces

WIDER USE OF SCHOOL BUILDINGS
Provisions for Community Groups • Space for Children's Organizations

ORGANIZATION AND SIZE
Administrative Divisions • Organization Practices • Size of Schools • Home Schools

SURVEYS AND SITE SELECTION
The Community Survey • Procedures in Developing a School Building Program • Site Selection

SERVICE ELEMENTS
Custodial Spaces • Storage • Heating and Ventilation • Sanitary Facilities • Communication Facilities • Materials of Construction • Notes on Important Details

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The design of an elementary school building today calls for a degree of planning and preparation unknown a generation ago. No longer is it sufficient to provide for the traditional 3 R's curriculum and little else.

Today, the school architect must understand the origin, objectives, and methods of modern education; he must recognize, and provide for, a pattern of *teacher-pupil activities* which often includes dramatics, music, arts and crafts, group games and dancing, and even simple scientific experiments.

Here at last is a book that specifies exactly what these special activities are, and what equipment and facilities they require. "Planning Elementary School Buildings" is the first book to explain the principles and practices of modern primary-school education in terms of architectural design.

Written out of the authors' long experience as planning consultants to boards of education, architects, and builders throughout the country this new book:

—shows how to plan a new school *around the curriculum it will serve*
—explains the philosophy, the goals, and the terminology of modern elementary education
—illustrates the daily activities of classroom, playroom, auditorium, library, and auxiliary areas

Illustrated with some 300 photographs, this book gives you specific planning data on site selection, one-story vs multiple-story design, layout and floor space in classrooms, necessary equipment for classrooms, lunchroom, indoor playroom, library, assembly room, faculty and administrative offices, custodial space—plus, of course, recommended types of heating, ventilating, and air conditioning systems. Special features include case histories of school surveys in typical communities—step-by-step plans for developing a school building program—and complete check-lists of essential equipment, facilities, and services.

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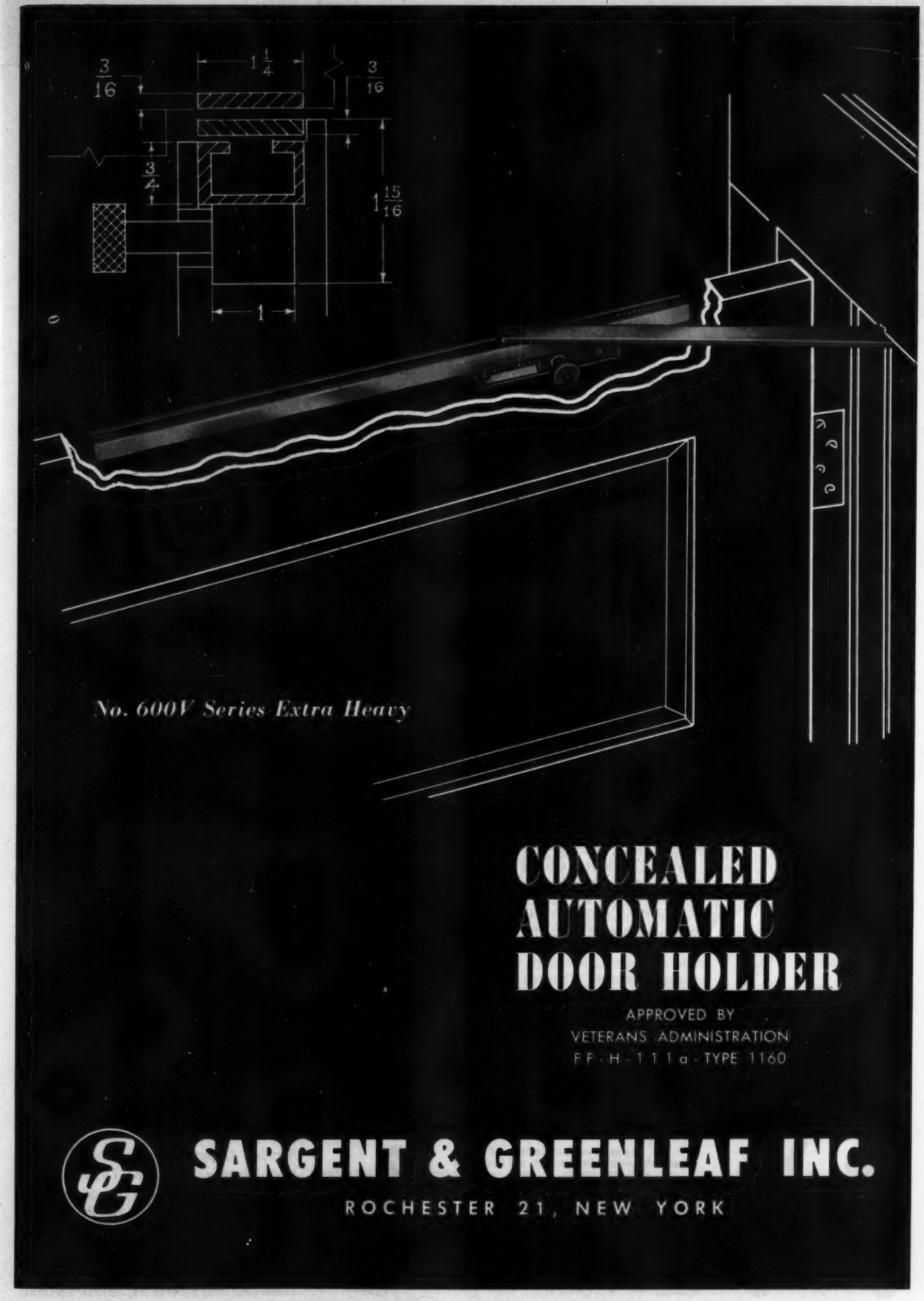

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BUILDINGS IN THE NEWS

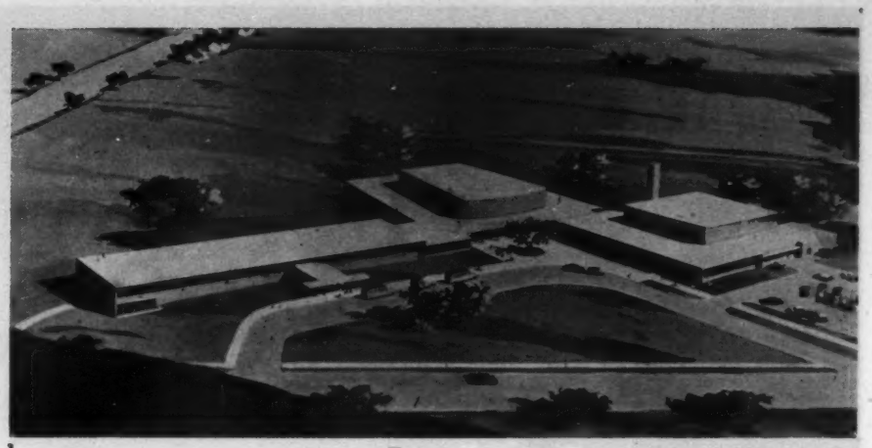
(Continued from page 292)

1955 A.A.S.A. Winners:

Honorable Mentions

Cleveland

Equal awards; numbers identify only



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1. Pine Grove High School, Pine Grove, Pa.; Muhlenberg Brothers. 2. Patterson Elementary School, Tecumseh, Mich.; Warren Holmes Company. 3. Frederick Carder Elementary School, Corning, N. Y.; Sargent, Webster, Crenshaw & Folley. 4. Millburn Senior High School, Millburn, N. J.; Epple & Seaman

DENVER — (for the National Council on Schoolhouse Construction) Dr. Charles W. Bursch of the Department of Education, Sacramento, Cal.; Floyd G. Parker, director, School Building Service, Department of Public Instruction, Lincoln, Neb.; and Dr. Arnold C. Tjomsland, consultant in community planning, Department of Public Instruction, Olympia, Wash.; (for the American Institute of Architects) Richard L. Aeck, Atlanta; Stayton Nunn, Houston; and Eberle M. Smith, Detroit.

(More awards on page 298)

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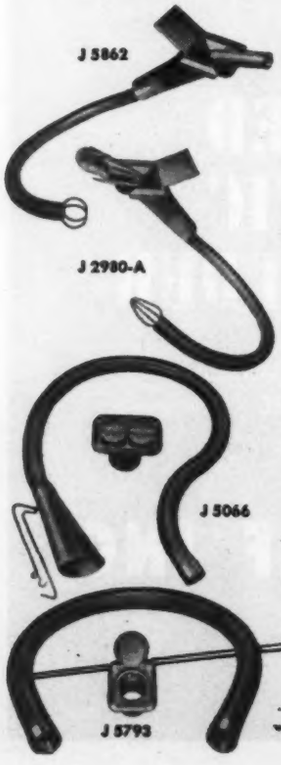

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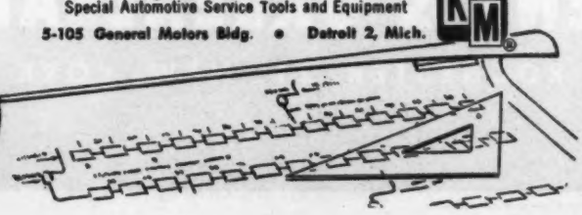

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THE RECORD REPORTS

BUILDINGS IN THE NEWS

(Continued from page 296)

1955 A.A.S.A. Winners:

Honorable Mentions

Denver

Equal awards; numbers identify only

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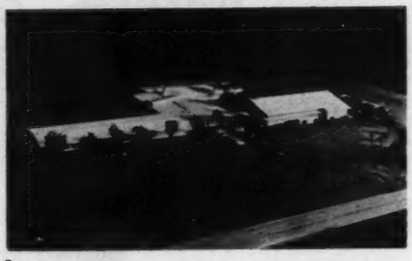

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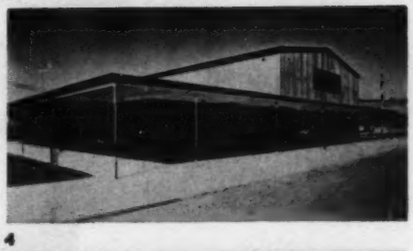

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1. Akron Elementary School, Akron, Colo.; Pollock & Sink. 2. North Thurston High School, Thurston, Wash.; William Arild Johnson and Harry E. Botesch. 3. Ocosta Combination Grade and High School, Grays Harbor, Wash.; William Arild Johnson and Harry E. Botesch. 4. Tierra Linda Intermediate School, San Carlos, Cal.; John Lyon Reid. 5. Healdsburg High School, Healdsburg, Cal.; Falk & Booth

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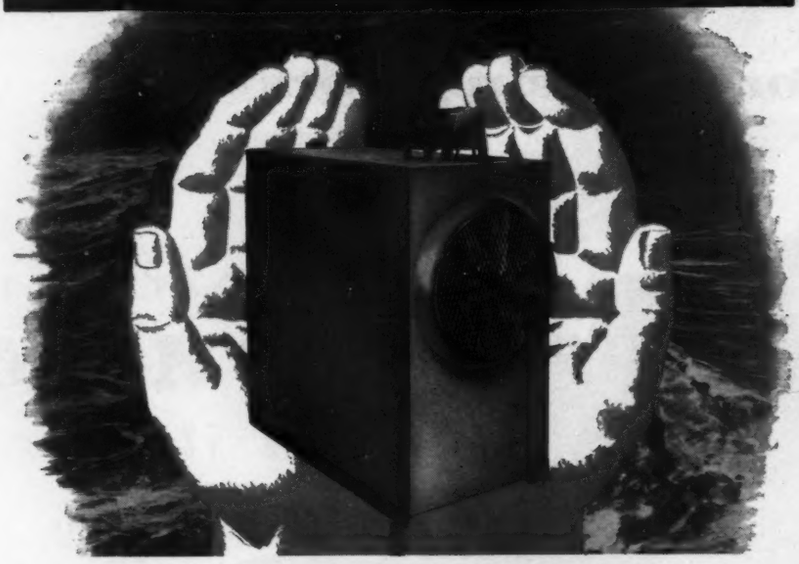

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On this historic date the first commercial white portland cement was given to the building field. After years of intensive research Dr. S. B. Newberry had accomplished his life-long quest for a portland cement that was white, and far more beautiful than any other cementitious material. And equally important, his method of making Medusa White cement was so inexpensive that architects and contractors were able to adapt it to a multitude of uses. Within a short time Medusa White became the accepted way for making finer stucco, cast stone, mortar and white concrete. Within a few years it was standard practice for better sculpture, cast slabs and terrazzo.

The pure "diamond blue" whiteness of Dr. Newberry's cement is something that just couldn't be improved. No other cement in the half century since its perfection has ever equaled the white color of Medusa White. It's no wonder that only recently it was selected carefully from all other cements for such outstanding construction as the United Nations Permanent Headquarters and the restoration of Independence Hall.

If you are planning construction of a better type, specify famed "non-staining" Medusa White, the original white portland cement for stucco, pre-cast slabs and terrazzo.

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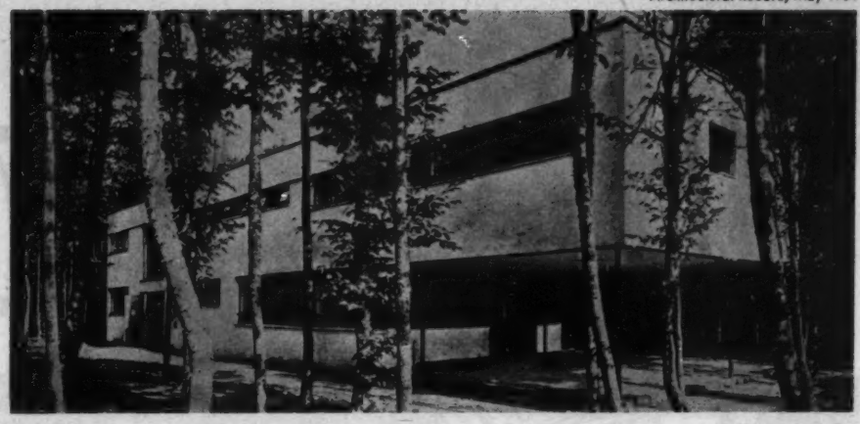
REVIEWING THE RECORD

(*Continued from page 20*)

The Turning Point

In 1929 he formed a partnership with William Lescaze. Of this association Frederick Gutheim, reappraising their 1932 design of the Philadelphia Savings Fund Society building (ARCHITECTURAL RECORD, October 1949), said, "When functionalism in the United States was raw, red and steamy-new, it found few more devoted followers than Howe and Lescaze. Theirs was the pure dogma. Up with pure function and to hell with good looks; at best, it was claimed, good looks would take care of themselves. Yet today what remains is not function but beauty."

Architectural Record, May 1934



From the office of Howe and Lescaze came designs for (above) the Dartington Country School, South Devon, England (1934) and the proposed Chrystie-Forsyth apartments, New York, where 41 per cent of park area was to be under raised buildings

Architectural Record, March 1932

The PSFS building, certainly the best known of the firm's works, was described by Mr. Gutheim as "our most charming skyscraper," and in appreciation of the building he wrote, "When people have finished talking about the verticals in the Daily News Building, the horizontals in the McGraw-Hill Building, the planning virtues of Rockefeller Center, or the simple height of the Empire State — when all this has been done, and you come down to the fundamentals of good building and design — there is PSFS. . . . It still has an excitement to communicate, a few surprises one has forgotten since the last visit, against a pleasant sense of finding things as satisfactory as one remembered them. Most of all, the building has that unique combination of boldness, of rugged strength approaching ugliness that was Lescaze's polytechnic contribution, and of richness, luxury and refinement approaching over-refinement that was Howe's."

(*Continued on page 302*)

Wood-Metal installation in Buck's Hill School, Waterbury, Conn., Architect: Francis L. S. Mayers

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This comprehensive guide presents new ideas for the design and decoration of homemaking departments. Shows how to make full use of Wood-Metal's Contemporary and Colonial cabinets, casework and furniture in a variety of decorator colors and natural wood finishes. Illustrates the newest in homemaking equipment.

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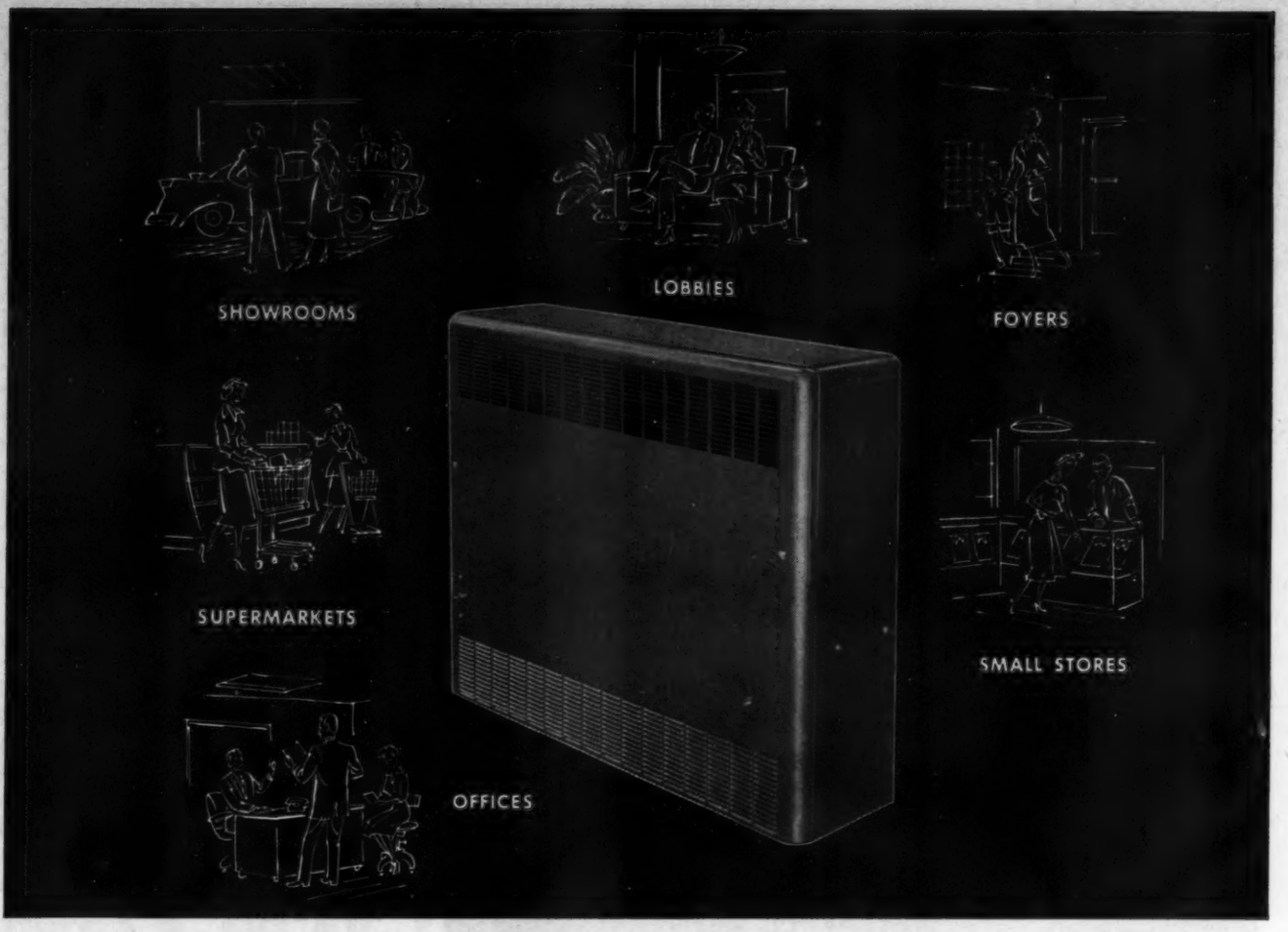

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Dunham Cabinet Unit Heater, interior view, showing blower fans, nonferrous heating element, removable fan assembly, filter.

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REVIEWING THE RECORD

Because of Howe's decision to retire, his partnership with Lescaze was dissolved in 1934. He came out of retirement (actually a semi-retirement; he had not been entirely idle) when the government asked him in 1942 to become supervising architect and then Deputy Commissioner of Design and Construction for the Public Buildings Administration.

(Continued from page 300)

As he finished this tour of duty, he wrote in the RECORD (December 1945) of the role of the architect vis-à-vis government planning: "Only [the architect-planner] can provide the statesman with graphic projections of the still impossible, leading to imaginative political action that will set the machinery moving. . . . He must provide master plans for master politicians."

In March 1947 Howe was one of the participants at Princeton University's Bicentennial Conference (reported in the April 1947 issue of the RECORD) and contributed this definition of the aims of architecture: "The end, if we would recapture unity of art and life in building, must be to create significant space, whether real, that is useful and practically dimensioned, or ideal, that is symbolic and proportionally dimensioned, in terms of contemporary thought and feeling, not only socially, economically, and politically, but scientifically, philosophically, and spiritually. This is the great aim which the so-called modern school of design, for all its blind gropings, has set itself. This is functionalism in its broadest interpretation. The building itself becomes a function, in the modern mathematical sense, that is to say, a dependent variable."

As an Educator

From this time on Howe dedicated most of his time and experience to the young. He served as resident architect at the American Academy in Rome (1948–49) and then, from 1950 through 1954, as Chairman of the Department of Architecture at Yale. At the time of his death he was preparing to leave for Turkey with Dean Holmes Perkins, to organize a school of architecture in Ankara which is being set up under the auspices of UNESCO.

Howe continued, in spite of his educational responsibilities, to function as a practicing architect in partnership with Robert Montgomery Brown; this association was formed in 1950 in Philadelphia. The most widely known designs from their office are the television station WCAU in Philadelphia and the newly dedicated offices of the Philadelphia Evening and Sunday Bulletin. A mammoth project for a Philadelphia Food Distribution Center was on the boards when Howe died. In recent years, Howe had devoted much of his time to Philadelphia's Penn Center project, for which he served as architectural advisor to the City Planning Commission.

Postscript: An honorary degree of Doctor of Fine Arts was awarded posthumously to George Howe by the University of Pennsylvania on June 15. The citation read: "George Howe, during more than forty years of practice in the City, combined a discriminating sensitivity to the values of the past with the innovations and creativity of the moderns, and thereby earned international stature in architectural design."

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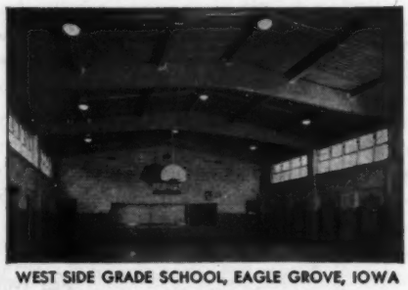

WEST SIDE GRADE SCHOOL, EAGLE GROVE, IOWA
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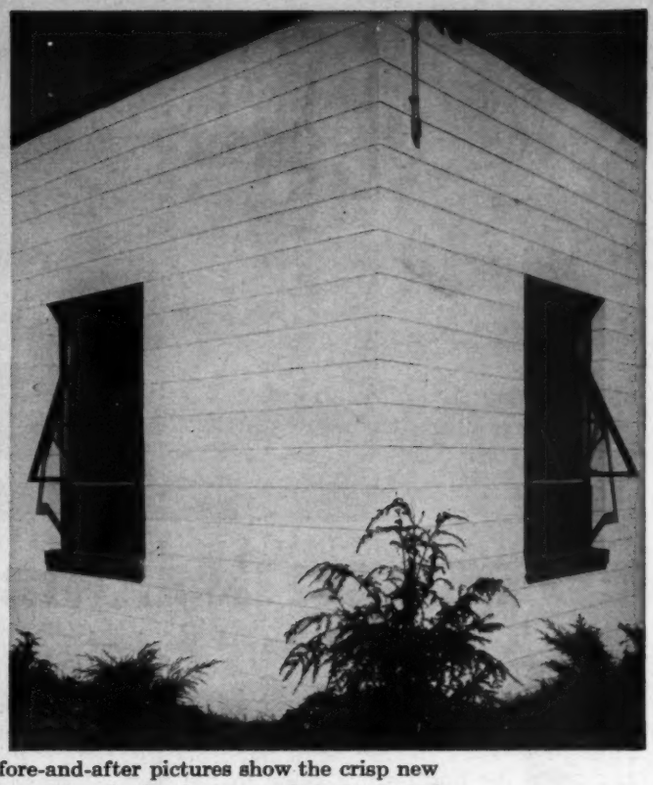

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CONCRETE BLOCK partially covered with cement paint. Note how voids are filled and the rough texture smoothed to form a bright, clean surface.

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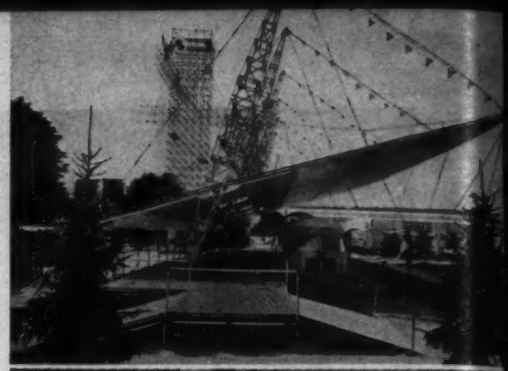

NEW DESIGN IN EXHIBITIONS

by Richard P. Lohse

Here is the first comprehensive book on modern exhibition design and architecture. *New Design in Exhibitions* gives an international cross-section of classics in this field. Superbly illustrated, this unique volume draws upon the finest work done in the past 20 years by architects and designers in the United States, England, France, Italy, Germany, Holland, the Scandinavian countries and Switzerland.

More than 600 excellent photographs, plans, structural details complement the pertinent text to graphically describe these outstanding examples of modern exhibition design.

The introduction describes exhibition techniques, themes and form as well as the achievements of pioneers in the field from 1851 to 1930. The major portion illustrates national, industrial, small manufacturing, scientific, cultural, social and political exhibitions of many types — 75 in number — ranging from the Finnish Pavilion at the 1937 Paris Exposition Universelles to the "Good Design" exhibition at Chicago's Merchandise Mart in 1950; and from the exhibit of Medieval Italian Goldsmiths at the Triennale di Milano in 1936, to the Haus Berlin exhibition at Hanover in 1951.

For its comprehensive, concrete treatment of a subject never before presented in book form, *New Design in Exhibitions* is an indispensable work for architects and designers as well as all creative exhibitors and manufacturers who wish effective, esthetic display of their products.

Richard P. Lohse is a Swiss architect who has specialized in exhibition design. He is editor-in-chief of *Bauen und Wohnen,* a Swiss architectural journal.

600 photographs
plans, structural details
and drawings

260 pages
9½ x 11". $13.50

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Introduction
Situation Themes Form Exhibition techniques
Economic basis and development of exhibitions
The contribution of artistic pioneer achievements
1851–1930 (illustrated)

Illustrations—Exhibition of countries
Metal industry Office equipment industry
Small manufacturing Carriage building
Telephone industry Paints industry
Dyestuffs industry Glass industry Plastics industry
Textile industry Gardening

Exhibition of scientific pioneer achievements in architecture
Town-planning Dwelling houses Furniture The design of utilitarian articles
Building research Design Art Medieval culture Physics
Experimental research Photography

Exhibitions of social nature;
of Relief organizations
of Hospital architecture

Exhibitions of a political nature

Permanent exhibitions

Exhibitions of the building industry

Exhibition structures of private enterprise;
of Communes
of Relief organizations
of Hospital architecture

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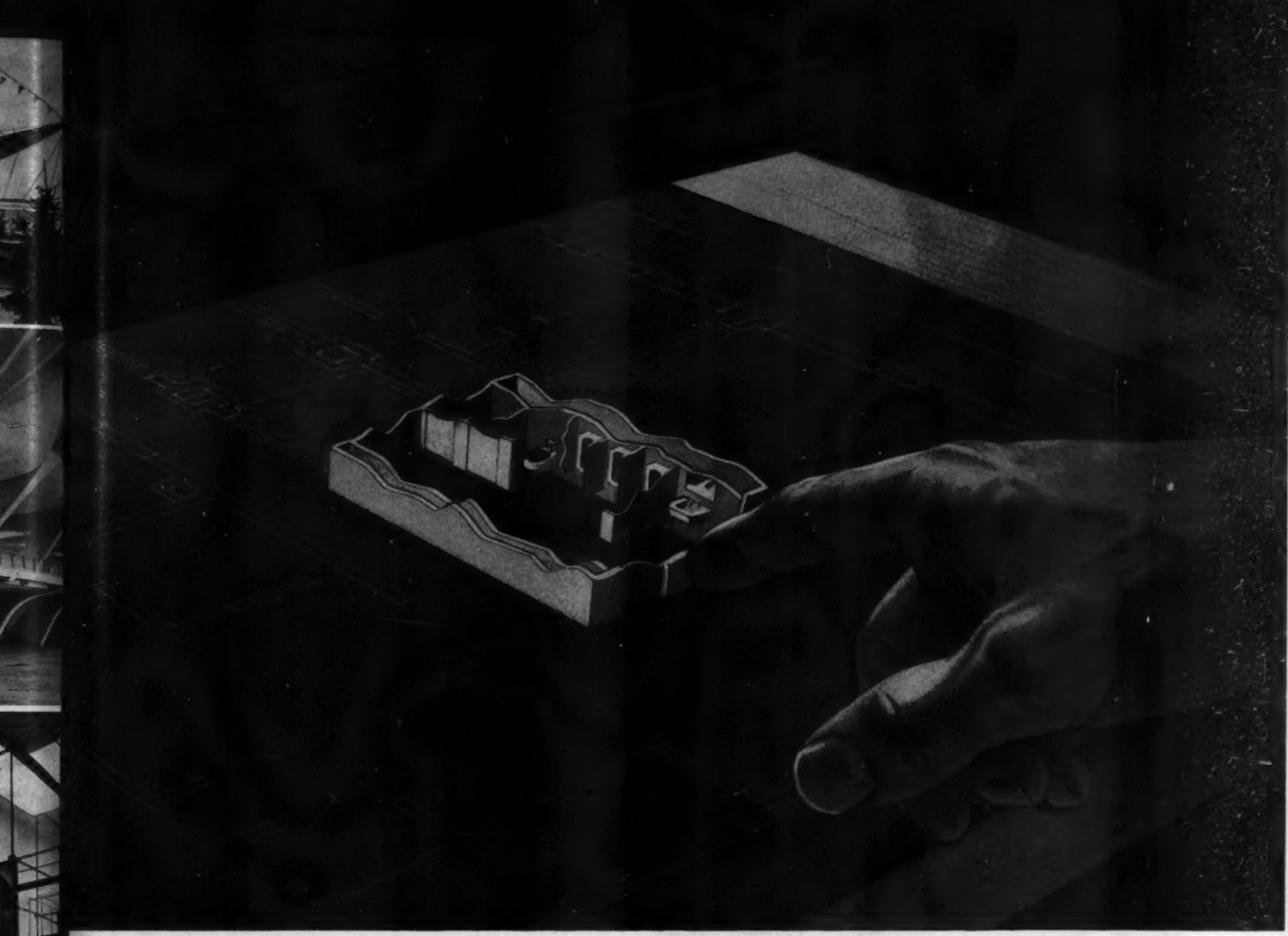

but what about the rooms that everybody sees?

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THE RECORD REPORTS

(*Continued from page 288*)

ON THE CALENDAR

July

3–8 The 93rd Annual Convention, National Education Association — Chicago

3–9 Annual Conference, American Library Association — Convention Hall, Philadelphia

5–15 Soil Engineering for Airfields and Highways; a special summer program under the direction of Dr. T. William Lambe, associate professor of soil mechanics, Department of Civil Engineering — Massachusetts Institute of Technology, Cambridge 39, Mass.

Postponed until September 18–26: Ninth Panamerican Congress of Architects (postponed from July) — Caracas, Venezuela

11–16 Fourth Congress of L'Union Internationale des Architectes — The Hague-Schveningue, The Netherlands

14ff Sixth annual architecture and planning workshop; until Aug. 24 — Instituto Tecnologico de Monterrey, Mexico

August

4–6 The 12th Annual Midsummer Conference, Michigan Society of Architects — Grand Hotel, Mackinac Island, Mich.

15–26 Noise Reduction: a special summer program under the direction of Dr. Leo L. Beranek, associate professor of communications — Massachusetts Institute of Technology, Cambridge 39, Mass.

22–23 Electronics and Automatic Production; a national symposium jointly sponsored by Stanford Research Institute and National Industrial Conference Board — San Francisco

22ff City and Regional Planning; a special summer program offering an intensive review of both administrative and technical aspects; through Sept. 2 — Massachusetts Institute of Technology, Cambridge 39, Mass.

September

6–16 Machine Tool Show, sponsored by National Machine Tool Builders Association — International Amphitheater, Chicago

6–17 Production Engineering Show, an exhibit of automatic mechanisms and techniques for manufacturing and processing industries sponsored by Clapp & Poliak — Navy Pier, Chicago

9–11 Fourth Annual Conference, Northwest District, American Institute of Architects — Many Glaciers Hotel, Glacier National Park

10–18 National Home Week; annual observance sponsored by the National Association of Home Builders

12–16 Annual technical conference, Illuminating Engineering Society — Hotel Statler, Cleveland

14–16 The 17th Annual Shop Practice Forum, Porcelain Enamel Insti-

(*Continued on page 306*)

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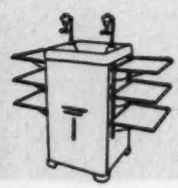

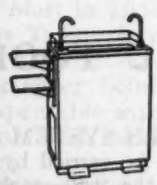

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THE RECORD REPORTS

(*Continued from page 304*)

tute — Deshler-Hilton Hotel and Ohio State University, Columbus, Ohio

19–22 Annual convention, American Hospital Association — Traymore Hotel, Atlantic City

25–29 Annual planning conference, American Society of Planning Officials — Sheraton Mount Royal Hotel, Montreal

26–30 Annual meeting, Atomic Industrial Forum, and First Trade Fair of the Atomic Industry — Sheraton-Park Hotel, Washington, D. C.

27ff Congress of Correction; 85th annual convention of the American Correctional Association; until Oct. 1 — Hotel Fort Des Moines, Des Moines, Iowa

27ff The 37th National Recreation Congress, sponsored by the National Recreation Association; until Oct. 1 — Denver

OFFICE NOTES

Offices Opened

• F. Eugene Jones and Craig G. Andrews have announced the formation of an association for the practice of architecture. Offices are at 1808 Classen Blvd., Oklahoma City, and at 19 W. 10th St., Tulsa.

• D. J. Kiely and Associates, Consulting Engineers, have opened offices for the practice of mechanical and electrical engineering. The firm is located at 276 Washington St., Providence 3, R. I

• John D. Parrish and Wilbur D. Starr have announced the formation of the partnership Parrish & Starr, Architects, which will have offices at 523½ Fourth Ave. S., St. Petersburg 5, Fla.

• J. Scott Thomas, A.I.A., Harry J. Harles, A.I.A., Charles R. Shields and Ryland P. Edwards are the partners in the new firm Thomas, Harles and Shields, Architects. Offices are located at 111 Nash St., Rocky Mount, N. C.

• John P. Work — Architect and Associates — have established new offices at 2701-A Duncan Dr., Amarillo, Texas.

Firm Changes

• A. Epstein and Sons, Inc., Architects and Engineers, have appointed Edgar Lynch, Architect, to head the firm's design department. Offices are at 2011 W. Pershing Rd., Chicago 9, Ill.

• Long & Gatling, Architects, have announced the retirement of James L. Gatling Jr. The firm's practice will be continued by Henry Sprott Long, Architect, at 1642 Brown-Marx Building, Birmingham 3, Ala.

• Skidmore, Owings & Merrill, Architects, have announced the admission of James W. Hammond and Walter A. Netsch Jr. as partners in the firm.

• Glenn Stanton, F.A.I.A., whose firm celebrated its twentieth anniversary last month, announces that the names of associates Rollin Boles, A.I.A., Keith

(*Continued on page 308*)

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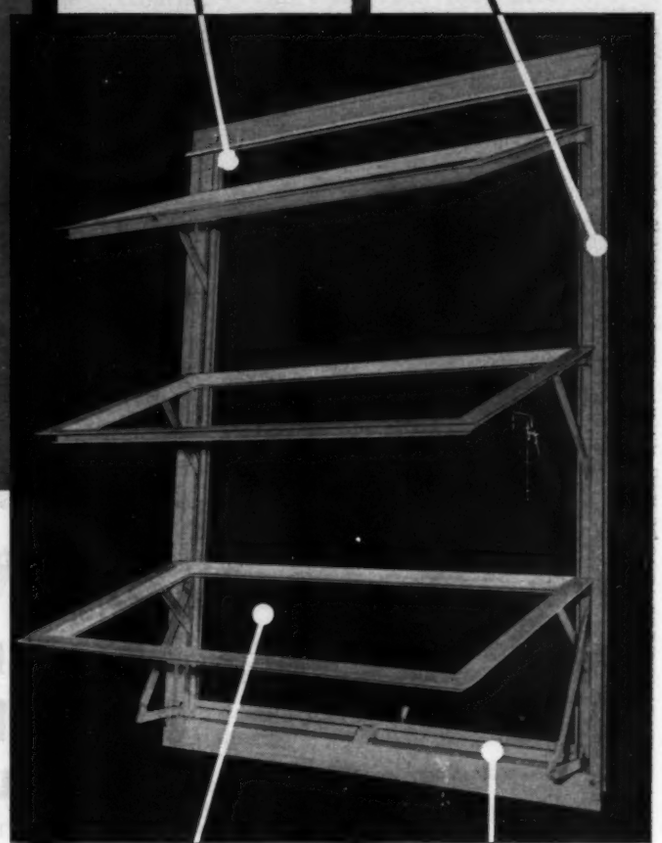

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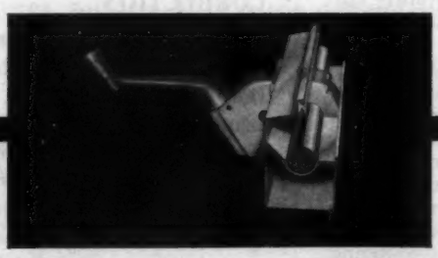

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THE RECORD REPORTS

(*Continued from page 306*)

Maguire, A.I.A. and Kingsley Church, A.I.A., will appear hereafter on the masthead of the firm, to be known as Stanton, Boles, Maguire and Church, Architects. Offices remain at 500 Concord Building, 208 S.W. Stark St., Portland 4, Ore.

• George Wellington Stoddard, A.I.A., has announced the establishment of a new partnership to be known as George W. Stoddard-Huggard & Associates, Architects and Engineers. Partners include Mr. Stoddard, Francis E. Huggard, A.I.A., and Virginia C. Stoddard, A.I.D.; associates are Hugo Bowe, Architect, and William Valentine, Engineer. Offices are at 1120 Harvard, Seattle 22, Wash.

• Ernest F. Tippetts, Robert W. Abbett, Gerald T. McCarthy, James H. Stratton and William Z. Lidicker, partners in the firm of Knappen-Tippetts-Abbett-McCarthy, have announced that the firm name has been changed to Tippetts-Abbett-McCarthy-Stratton, Engineers. Newly admitted associate partners are Frank Lilien, Leonard A. Lovell, Thomas J. Fratar, Walther Prokosch and Barnett Silveston. Offices are at 62 W. 47th St., New York 36, N. Y.

• Weihe, Frick & Kruse, Architects, have announced that William B. Fox recently became a partner in the firm. New offices are at 414 Mason St., San Francisco 2, Cal.

New Addresses

J. Robert Bence & George Stein, Architects, 143 S. Center, Casper, Wyo. (P. O. Box 604)

A. O. Budina, A.I.A., Room 704, Richmond Federal Bldg., 728 E. Main St., Richmond 19, Va.

Corning & Moore, Architects, Suite 702, 1302 18th St., N. W., Washington 6, D. C.

Sydney Gerson, Architect, 1818 Sherbrooke St. W., Montreal, Que.

Lockwood Greene Engineers, Inc., Architects-Engineers, 41 E. 42nd St., New York 17, N. Y.

LeBlanc & Dean, Architects, 4771 Convention St., Baton Rouge, La.

Norman C. Nagle, Architect, 688 Sexton Bldg., Minneapolis 15, Minn.

Taylor and Fisher, Architects, 130 W. Hamilton St., Baltimore 1, Md.

Wheeler & Becker, Architects, 1210 David Stott Bldg., Griswold at State St., Detroit 26, Mich.

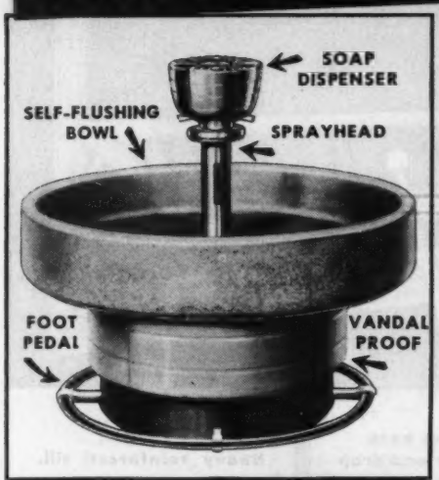
(*More news on page 310*)

CORRECTION

The Upholstery Leather Group, Inc., which announced its Leather in Decoration Design Competition in the May issue of the RECORD (p. 311), has revised Rule Five of its entry requirements to read "Competitors are required individually (per entry blank) to designate the Upholstery Leather Group, Inc. as their sole agent, with full authority to judge, exhibit and protect their rights in all submitted designs from date of receipt at 141 E. 44th St., New York City to the time of release to the owner on or about Feb. 1, 1956."

The group also announced that the judges for the competition would be C. Eugene Stephenson, Robert L. Gruen, Mary Davis Gillies, Pierre Bedard, Eleanor Forbes, Lewis G. Adams and Harry Martin.

PARENTS ARE MORE PARTICULAR ABOUT SCHOOLS TODAY



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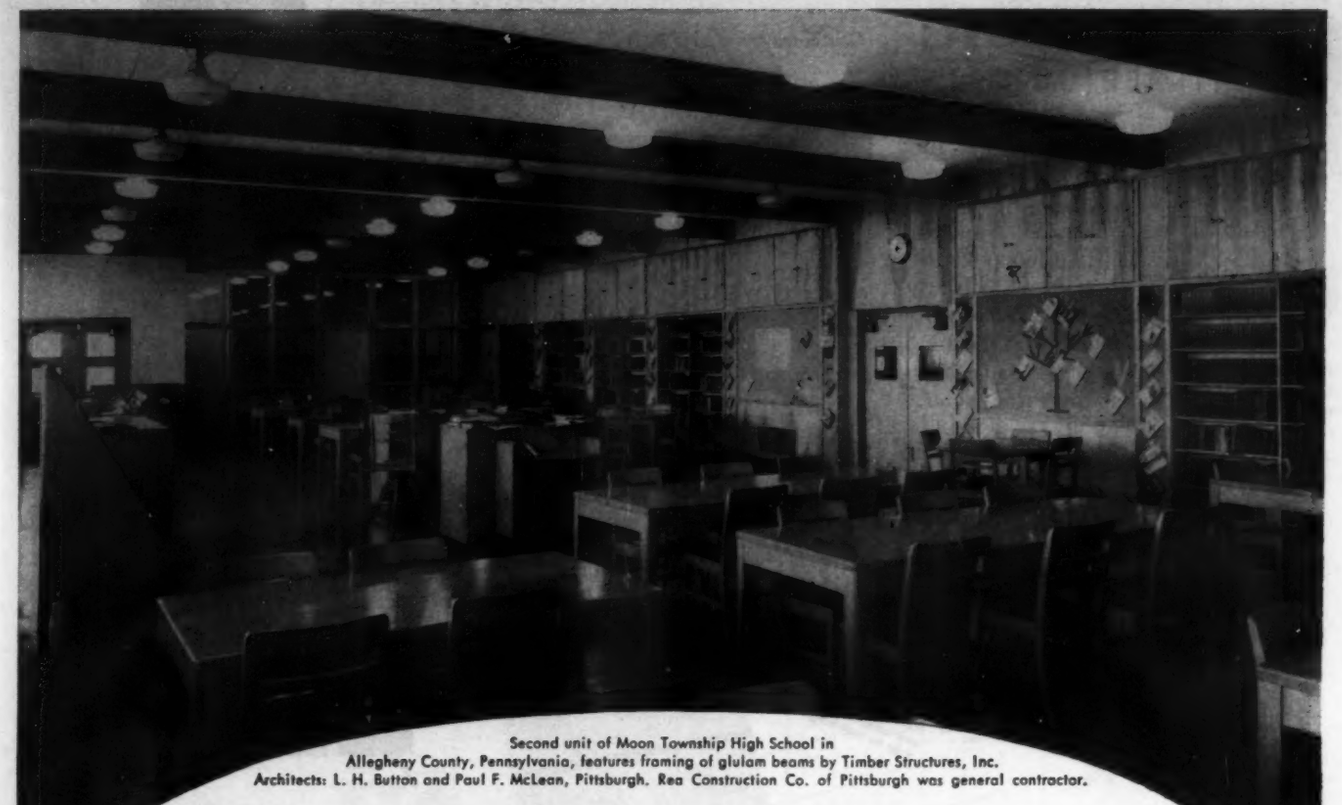

Second unit of Moon Township High School in
Allegheny County, Pennsylvania, features framing of glulam beams by Timber Structures, Inc.
Architects: L. H. Button and Paul F. McLean, Pittsburgh. Rea Construction Co. of Pittsburgh was general contractor.

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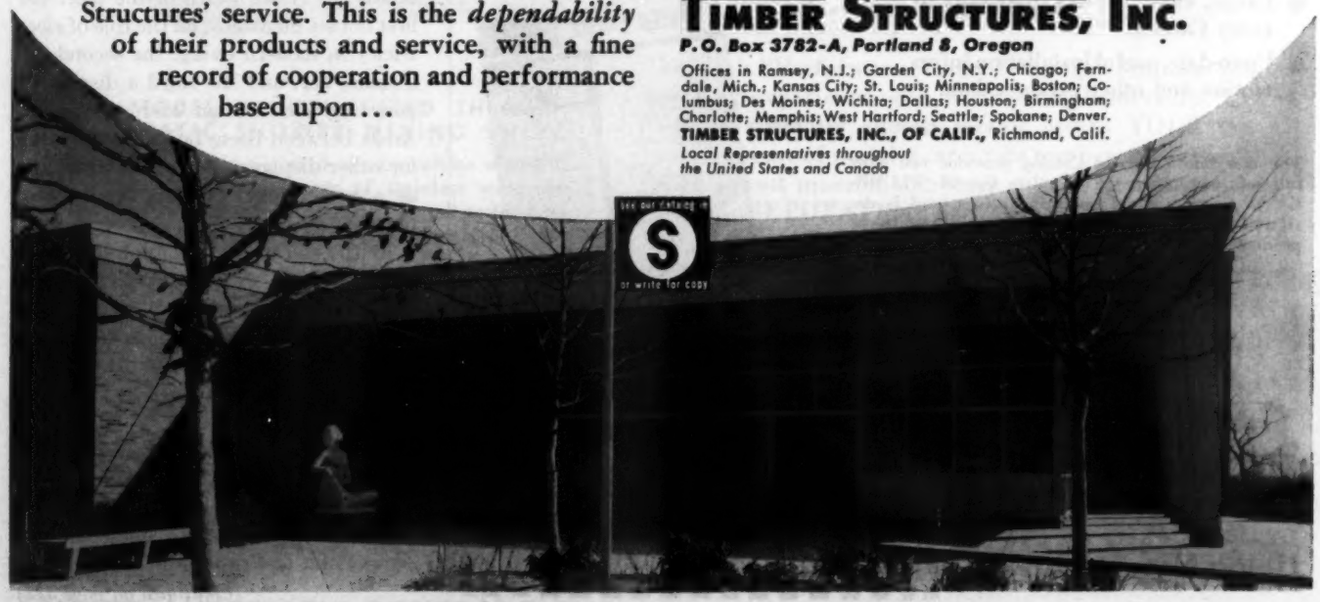
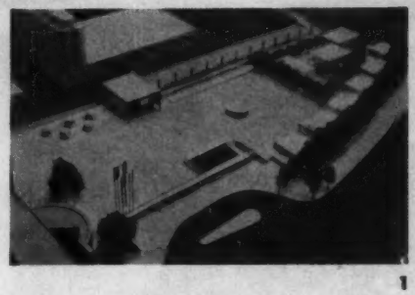


THE RECORD REPORTS
RECENT PERIODICALS

(*Continued from page 308*)

FORM, Number 2, 1955, gives all its pages to a view of the city of Hälsingborg and a preview of the design exhibit being held there this summer. The Swedish magazine likens H55 (the exhibit's shorthand symbol for itself) to the great Stockholm Exhibition held 25 years ago.

The exhibition grounds are laid out in two sections: the entrance (1) and a 900-yd pier (2) built out over the water.



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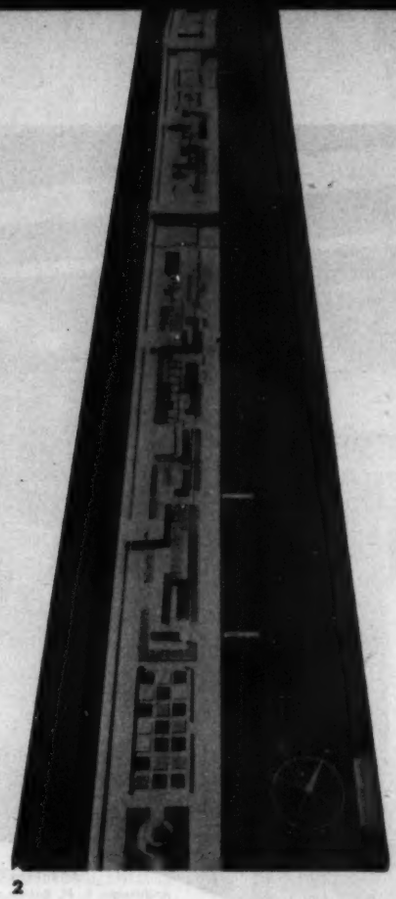

2

3

These two sections are connected by a foot bridge.

The entrance area contains, besides the concert hall (shown in the lower left hand corner of the photo), a display of modern housing design and "the home of the future." A long pavilion is designated for international exhibits.

Three exhibition buildings extend across the entire width of the pier: the first houses an exhibit on the role of electricity in modern living, the second (3) a snack bar, and the third a display of passenger line design and decoration. Areas between these buildings are used for other displays and for such services as a post office, gift shop and travel bureau.

At the end of the pier (not shown on the model) the Swedish Association of Industrial Design will have its exhibition hall; there also is a hall displaying industrial design from the other Scandinavian countries, as well as the main restaurant.

Architects Torbjörn Olsson and Sven Silow were in charge of the entrance area, while Carl-Axel Acking designed the pier and Bengt Gate the industrial design exhibit and restaurant.

(*Continued on page 312*)

New JAY R. SMITH MFG. CO. PLUMB-EASY Catalog E

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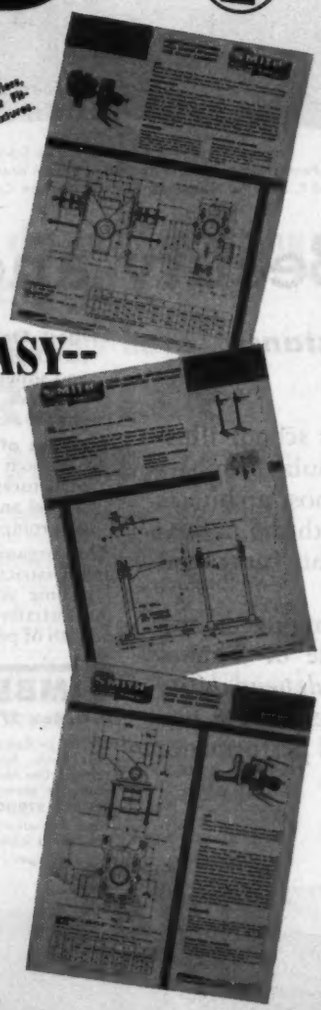

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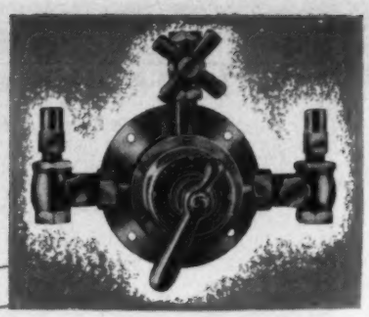

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THE RECORD REPORTS
RECENT PERIODICALS

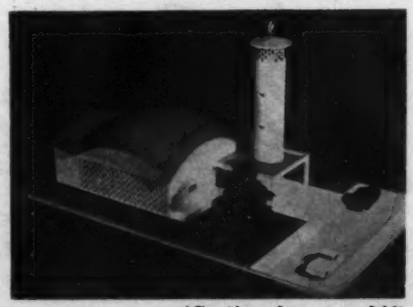
(*Continued from page 310*)

ARCHITECTURAL DESIGN, May 1955, a special issue of the British journal, reviews the work of Maxwell Fry and Jane Drew in West Africa, where since the war they have been working on an extensive program of educational building. Miss Drew introduces the issue with a discussion of the problems of designing for a climate in which "the shade temperature is usually from 85° to 90°, often combined with a 90° humidity, and the rainfall is usually over 80 in. a year." The firm's building is, as Miss Drew puts it, "deliberately geometric and orderly . . . against the extreme disorder of the luxuriant forest," while "the sunshine and moisture and heavy overcast sky and feeling of oppressive lethargy seem to call forth moulded forms which are rhythmical and strong."

Mr. Fry has contributed a description of the firm's largest project, the University College at Ibadan, Nigeria.

Concrete screen for library at Ibadan University has "bold and sculptural" quality which Miss Drew says climate demands. Below: slack room verandah

Above: ceiling of Ibadan's assembly hall curves out to eaves, shields high balcony windows. Below: project for mosque at university by firm of Fry, Drew, Drake and Lasdun



(*Continued on page 314*)

MICHAELS QUALITY PRODUCTS
for your building projects

The bronze doors of the Holy Sepulchre Mausoleum, Detroit, are another typical example of Michaels products for the building industry. In addition to doors, Michaels produces many building products of stainless steel, aluminum and bronze.

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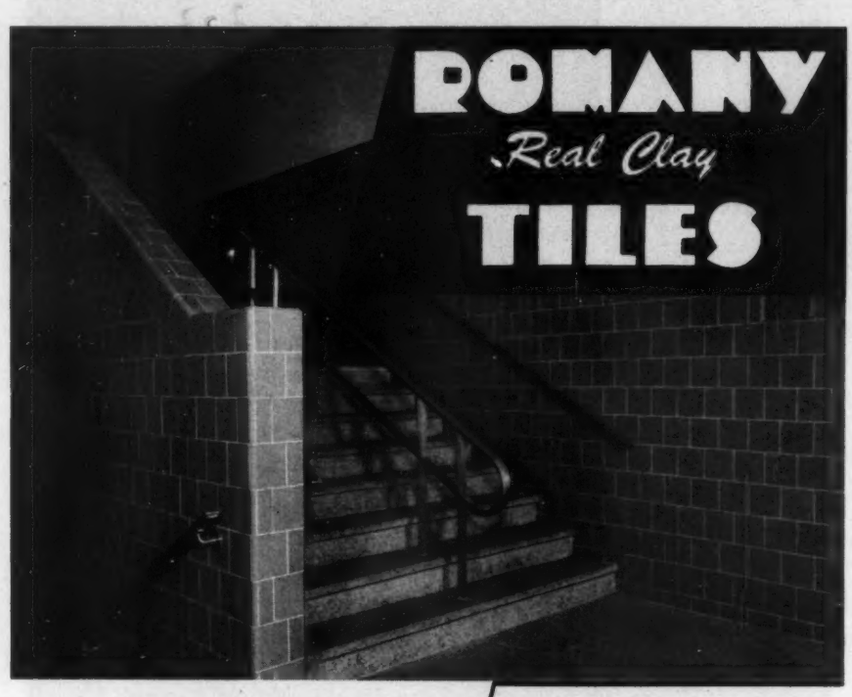
THE RECORD REPORTS
RECENT PERIODICALS

(*Continued from page 312*)

THE ARCHITECTURAL REVIEW, April 1955, contains a 10-page review and assessment of the work of Philip Johnson, and compares him, in its introduction to Henry-Russell Hitchcock's article, to "the gentlemen-connoisseurs of the English Palladian revival."

Mr. Hitchcock reviews 13 of Johnson's buildings (in some cases aided by Johnson's own descriptions), from a 1942 house in Cambridge, Mass., to a project for a synagogue in Port Chester, N. Y. (ARCHITECTURAL RECORD, June 1955, pp. 186–188) — a project which Mr. Hitchcock feels is the harbinger of a new direction in Johnson's work, which would be "less Miesian, more intensely personal."

In summing up, Mr. Hitchcock says, "Johnson's work illustrates no manifesto, no ironclad intellectual program, but rather represents a continuance of one of the basic currents of modern architecture, a current which can be traced back to the earliest prairie houses of Wright, if not so clearly (except in a metaphorical sense) to the special classicism of architects like Palladio and Soane and Schinkel. . . . The acceptance (of his works) by an élite . . . stresses their appeal to Americans who conceive their still emergent culture, not as something basically opposed to that of the older Western World, but as its natural continuance in a new land and a new age."



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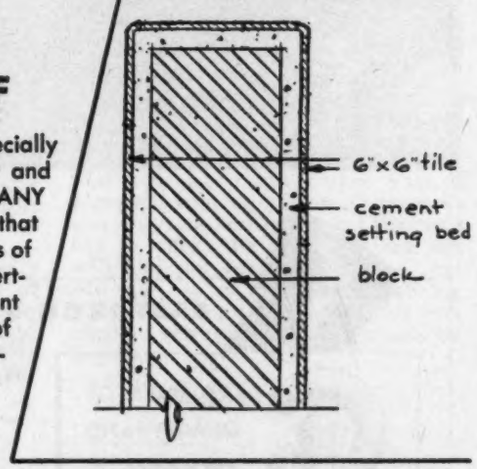

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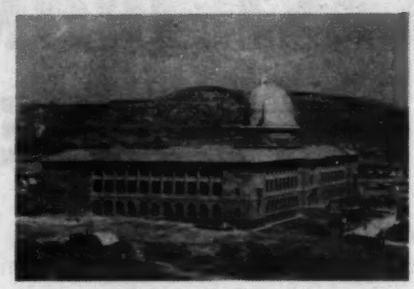
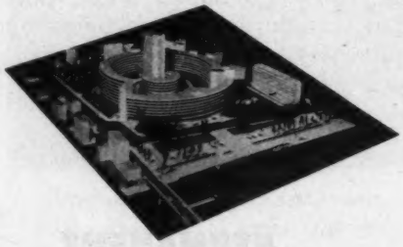


THE INDIAN BUILDER, February 1955, features on its cover the new Administrative Building just completed for India's National Defense Academy at Khadakvasla. The designer of the building was the chief engineer for the National Academy project.

Inside the magazine, editor Patwant Singh criticizes the building severely, finding the architecture "quite incomprehensible." He cites the building as an example of the general failure of Indian architects to express "our contemporary assertiveness" in their public buildings.



L'ARCHITECTURE D'AUJOURD' HUI, February 1955, carries a project story on La Maison de la Radio, which is now under construction in Paris, in spite of some earlier controversy. The building, which was designed by architect Henry Bernard, will have an aluminum façade. Interior arrangements are still under study, although plans now show a scheme of three concentric circles to be used separately for the circulation of performers, technicians and visitors.

(*More news on page 330*)

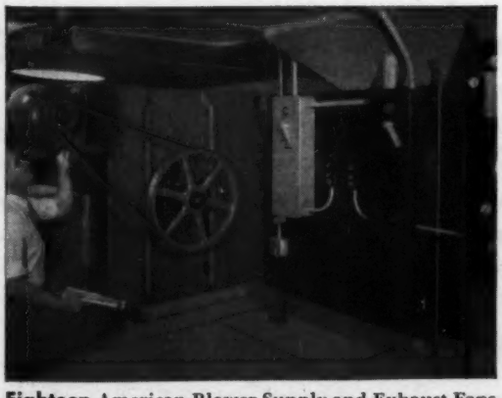
Bloomingdale's new California-styled department store, Stamford, Conn. General contractors: The Austin Co.; consulting engineer: Edward Ashley—both of New York.

Inside, American Blower equipment is quiet-operating; no distracting "machinery" noises to annoy customers.

Louis D'Orso of Richards & Jessup Co., Stamford, Conn., says; "Thanks to American Blower, we were able to meet Bloomingdale's 120-day deadline."

Air conditioning: from blueprint to Bloomingdale's in just 120 days!

American Blower helps contractor meet unusual installation deadline



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"American Blower did an excellent job of furnishing equipment for Bloomingdale's air-conditioning system," reports Louis D'Orso, Richards & Jessup superintendent. "This was no ordinary job. American Blower had to tailor-make and ship the equipment—and we had to install it—all within 120 days!

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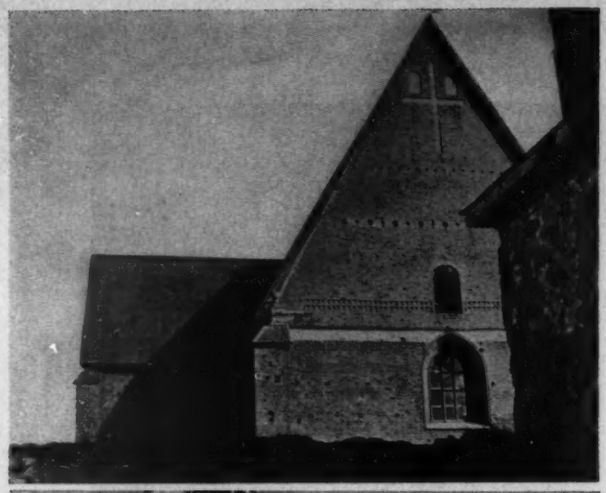

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by Eduard and Claudia Neuenschwander

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Finnish Architecture from 1764 to 1950 — 62 pages

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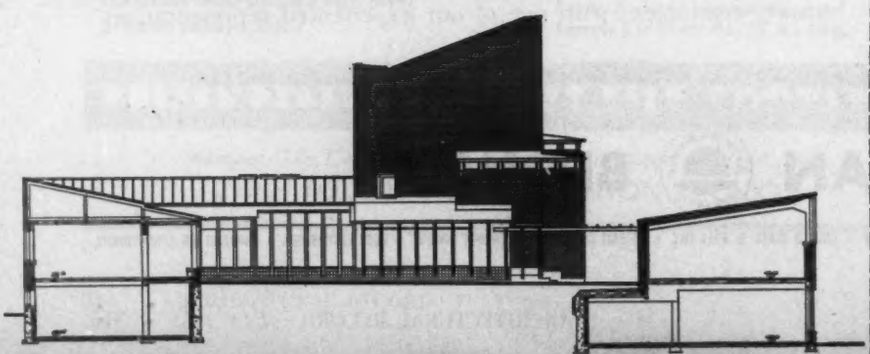

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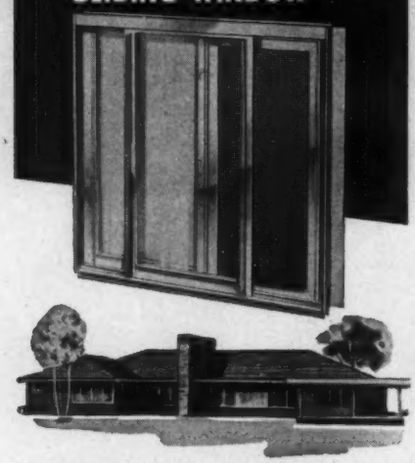

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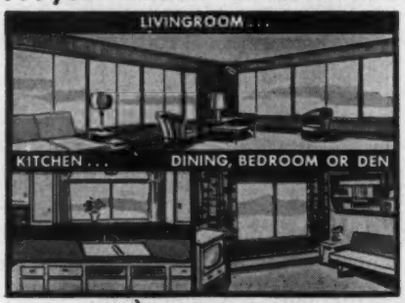

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WASHINGTON REPORT

(Continued from page 24)

struction requirements in the miscellaneous types of non-Federal public works such as court, police, and general administrative buildings; recreational buildings; penal and corrective institutions; publicly owned electric light and power plants, gas supply systems, and local transit facilities; parks and playgrounds; and state and local conservation and development work. However, it has been assumed that requirements in this miscellaneous area bear the same relationship to needs in the four major classes of non-Federal public works as is indicated by the pattern of expenditures in the 1945–54 period, or about 10 per cent. Using this ratio, needed new construction for other public works would approximate $23 billion. The comparatively low level of activity for these types in the past 10 years, as compared with previous periods, suggests that this figure is a conservative estimate of needs in this area.

Another indication that the $23 billion estimate is a minimum figure is provided by the recent survey by the Bureau of the Census of the construction plans of 4000 state and local governments, which showed that one fifth of the $25 billion of planned or programmed work reported was for projects falling in this miscellaneous classification.

Non-Federal public works construction in 1955 probably will increase to a new high of $10 billion, according to the study. This would be a 16 per cent advance over last year's record level, or about the same rate of expansion that occurred from 1953 to 1954. All classes of such work can be expected to increase again this year.

URGE MORE PUBLIC WORKS

PUBLIC WORKS PLANNING AND CONstruction should be stepped up, asserted the report made to Congress by the Joint Congressional Committee on the Economic Report after lengthy hearings on the President's annual economic message. The committee urged that Federal public works projects be financed through direct appropriations rather than via indirect "authorities" which circumvent the public debt or rely on special earmarked revenues. The committee also recommended activating as soon as possible the office of Coördinator of Public Works Planning proposed by the President.

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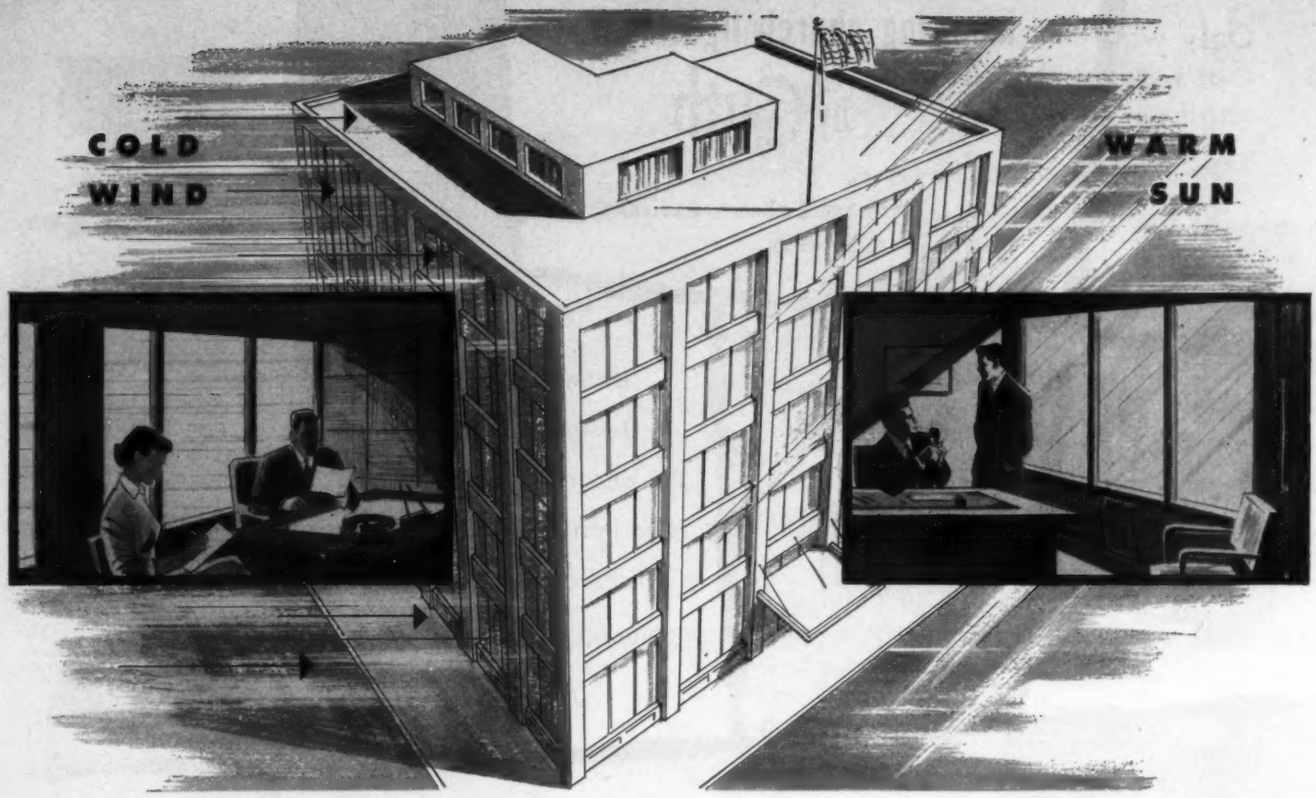

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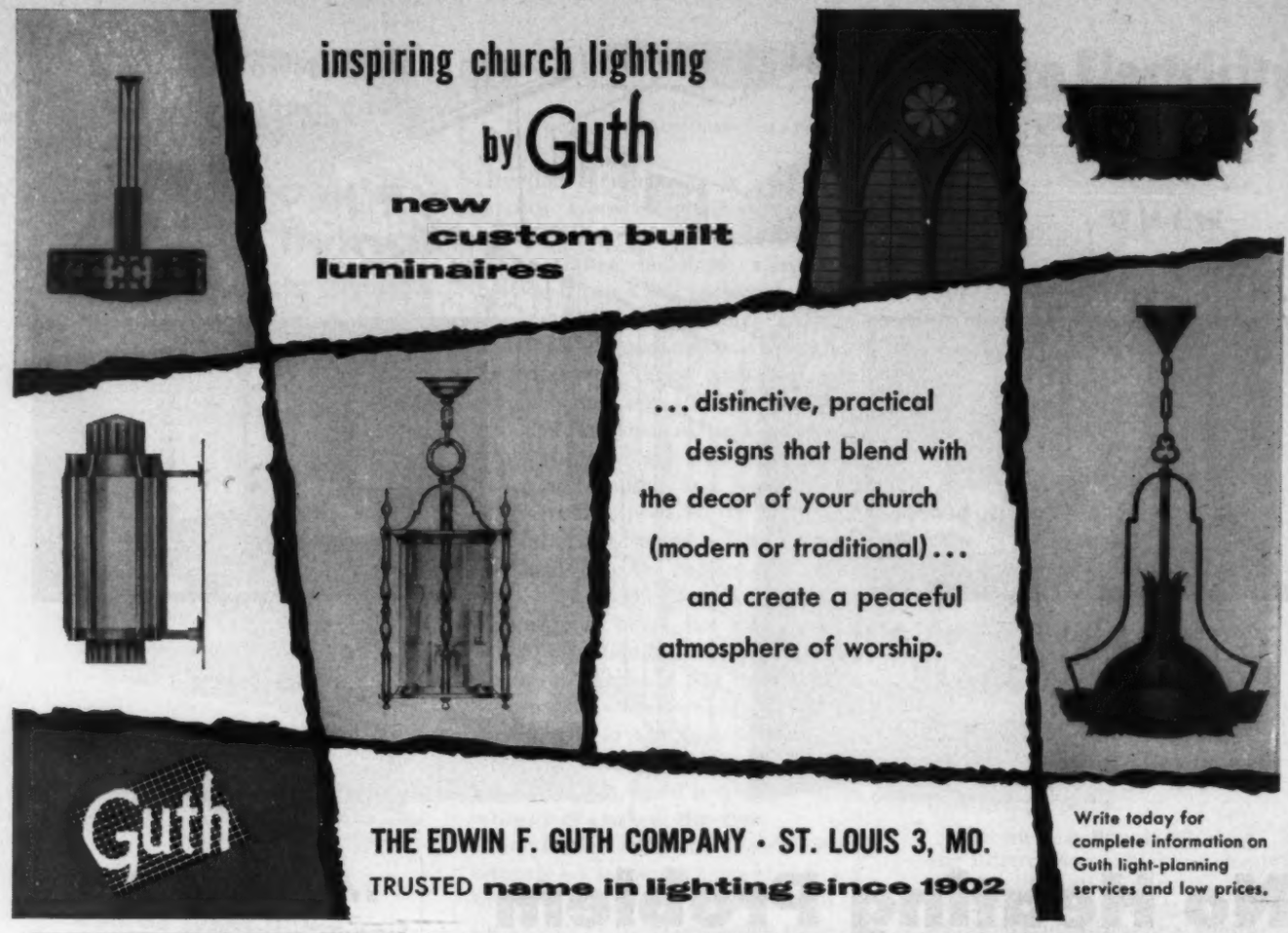

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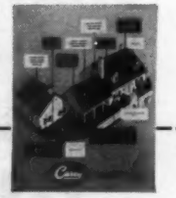

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A SPECIAL REPORT

SCHOOL BUILDING NEED

(Continued from page 12)

Kansas—"I have looked through our materials and I cannot find the deficit referred to in your telegram."—W. C. Kampschraeder, Assistant State Superintendent of Public Instruction.

Kentucky—"We have no information on what basis the Department of Health, Education and Welfare shows sharp decline in estimated 1960 classroom deficit. Have never seen any revised estimates for Kentucky. Any downward revision in Kentucky was definitely the result of lowered educational standards. Am convinced that this juggling of figures has political implications and ignores needs of school children."—Wendell P. Butler, Superintendent of Public Instruction.

Maine—"Believe estimate of 407,000 based on development of satisfactory school plant needs. Decline to 176,000 must include only additional classrooms immediately needed to supplement existing facilities, many of which should be abandoned."—W. O. Bailey, Deputy Commissioner of Education.

Maryland—"Phase One of School Facilities Survey indicated immediate need for 3662 classrooms. Phase Two (long-range program) indicates need for 6750 classrooms by 1960. Continued increase in birthrate indicates latter figure may be conservative."—Thomas G. Pullen Jr., State Superintendent of Schools.

Massachusetts—"No reduction in estimates now."—John J. Desmond Jr., Commissioner of Education.

Minnesota—"Continued School Facilities Surveys in Minnesota confirm earlier surveys and indicate increased need for classrooms compared to former indications."—Dean M. Schweickhard, State Commissioner of Education.

Mississippi—"Survey report on school classroom needs filed with U. S. Office of Education July 1954 has not been revised and reports realistic picture in Mississippi."—J. M. Tubb, State Superintendent of Education.

Montana—"Decline in estimated classroom needs for 1960 as far as Montana is concerned is due primarily to unprecedented bonding and construction since beginning of the school facility survey."—Mary M. Condon, State Superintendent of Public Instruction.

Nebraska—"Nebraska has not completed Phase Two of School Facilities Survey. Nebraska has not changed estimates. Need for statewide reorganization of school districts makes it impossible to predict with accuracy."—F. B. Decker, Commissioner of Education, by Floyd G. Parker, Director School Buildings Services, Department of Education.

New Jersey—"Phase Two School Facilities Survey in New Jersey shows need for 12,000 classrooms by 1960. We believe this estimate accurate but conservative. This estimate does not include replacement of some facilities, 30 per cent of state total, which will be more than 40 years old by 1960."—F. M. Raubinger, State Department of Education.

Nevada—"With building now under construction and contemplated we will be free from double sessions next year but in most instances building programs have not released the continued use of obsolescent schools."—Glenn A. Duncan, Superintendent of Public Instruction.

(Continued on page 326)

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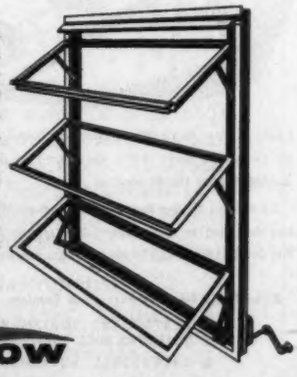

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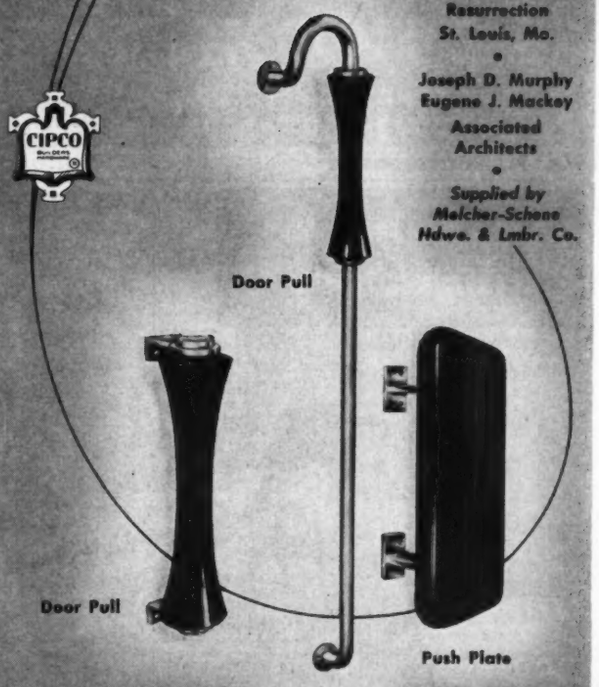

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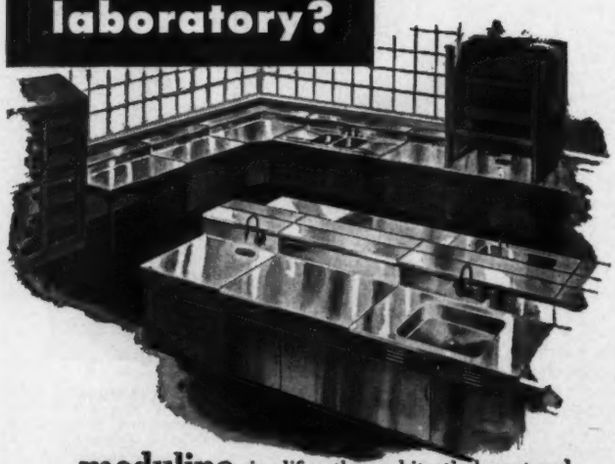

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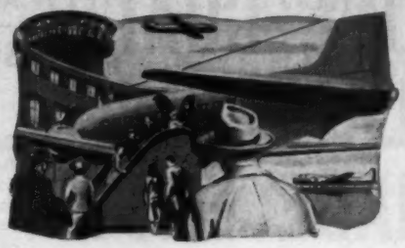

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A SPECIAL REPORT

SCHOOL BUILDING NEED

(Continued from page 322)

Ohio—"Ohio did not complete Phase Two of the School Facilities Survey. Ohio School Survey Committee did report that in Ohio 17,000 additional classrooms would be needed by 1960. This is more than we anticipated from Phase One of the survey but is a realistic picture of school needs."—R. M. Eyman, Superintendent of Public Instruction.

Oregon—"In Phase Two . . . we estimated 3609 additional classrooms needed to 1959. Preliminary reports show school districts underestimated needs for that period. Need in Oregon will probably run between 4000 and 4500 classrooms. Phase two figure : planned for use of classrooms to maximum possible life. Realistic figures will be upward rather than downward."—Rex Putnam, Superintendent of Public Instruction.

South Dakota—"The difference in providing facilities is due to the fact that the electors voted to raise bond levy from five to 10 per cent of assessed valuation, thereby making it possible for local effort to provide additional funds for construction. However, the overall picture in South Dakota has changed very little to date."—Harold S. Freeman, Superintendent of Public Instruction.

Tennessee—"In school districts where we have rechecked the needs we find that our original estimates were conservative."—Quill E. Cope, Commissioner of Education.

Texas—"Our estimates for Texas do not reflect sharp decline in classroom deficit indicated for nation."—J. Warren Hitt, Deputy Commissioner.

Utah—"Utah did not participate in nationwide school facilities survey. Utah's classroom needs are increasing rather than declining."—E. Allen Bateman, Superintendent of Public Instruction.

Vermont—"We are unable to understand grounds for sharp decline. . . . Our total figure for classroom needs stands at 1426 as agreed with U. S. Office in Sept. 1954. We know of no changes and have reported none that would reduce this figure."—A. John Hodlen Jr., Commissioner of Education.

Washington—"Washington State Report Phase Two School Facilities Survey realistic conservative picture of school building needs to 1959–60 and is increase over Phase One report. Phase One report, June 1952, showed immediate need that time for 7763 classrooms at estimated cost $263,468,092, of which 4271 were to replace obsolete facilities. Phase Two report, February 1955, shows plans to construct 6484 classrooms, of which only 296 are replacement ofs ubstandard classrooms, at estimated cost $230,127,810 by 1959–60 school year. In addition, according to standards established for Phase One, approximately 4000 classrooms now in use are substandard. Continued use of substandard classrooms due to lack of funds means lowering educational standards. Between June 1951 and December 1954 3879 classrooms authorized for construction at cost of $128,100,410."—Pearl A. Wanamaker, State Superintendent of Public Instruction.

West Virginia—"Phase Two of School Facility Survey shows West Virginia will need approximately 3765 additional classrooms by 1960. This figure is in line with data collected on Phase One of the School Facility Survey. West Virginia will need $105 million which amount exceeds bonding capacity by approximately $58 million. 42 of 55 counties not able to finance school needs. Without Federal aid counties must continue to use obsolete buildings."—W. W. Trent, State Superintendent of Free Schools.

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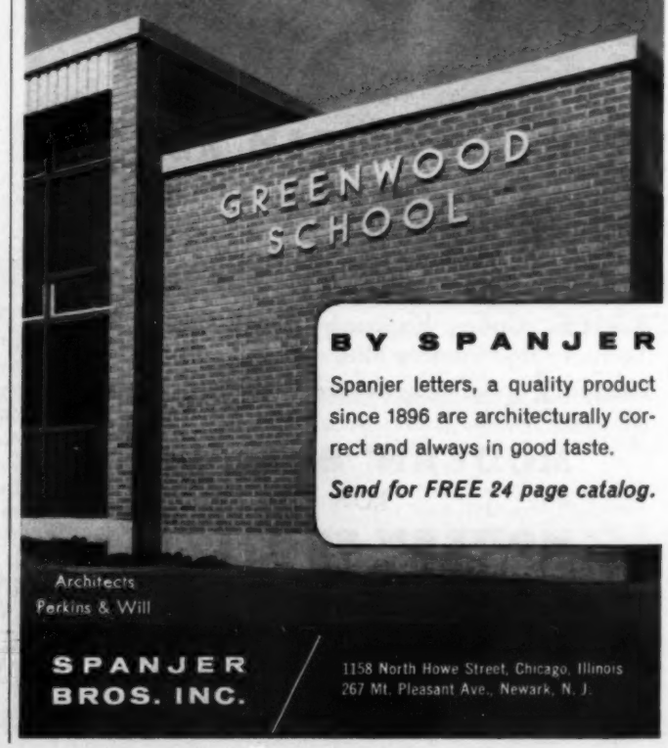

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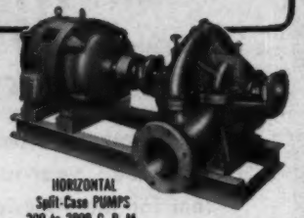

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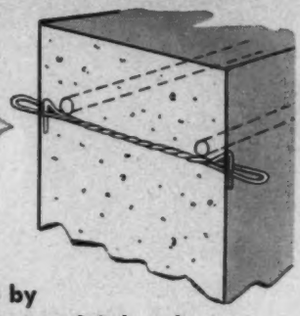

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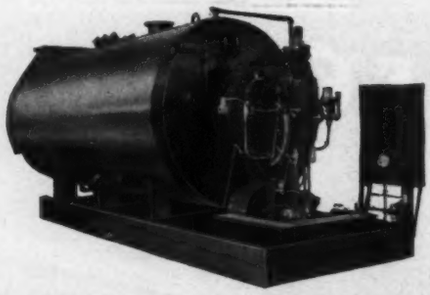

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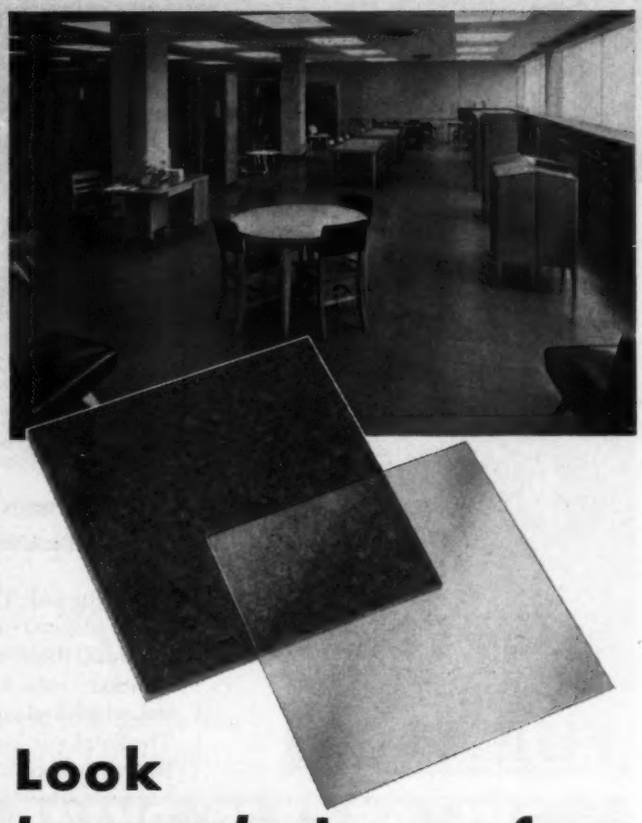

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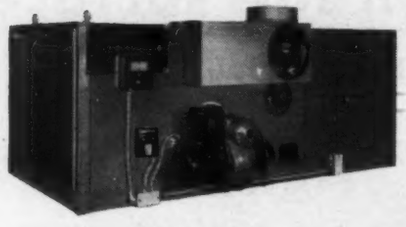

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THE RECORD REPORTS

(Continued from page 314)

HILTON OPENS IN TURKEY, MAKES PLANS IN GERMANY

In Istanbul, Hilton Hotels International planned much festivity for the scheduled June 10 opening of its latest addition — the 300-room Istanbul Hilton, which looks out over the Bosphorus. The hotel was built, at a cost of $7 million, as a cooperative effort of the Turkish government and Hilton. Architects were Skidmore, Owings & Merrill, in association with Turkish architect Sedad H. Eldem. (A project story on the Istanbul Hilton was featured in ARCHITECTURAL RECORD, January 1953, pp. 103–116.)

And in Berlin, Hilton announced plans for another hotel, this one to be sited on the corner of the Zoological Gardens about a mile and a half from the Brandenburg Gate. The $4½ million building will afford a panoramic view of Berlin and the Soviet sector. This project also depends on international cooperation; agreements between the German government and Hilton provide for a German company to own the hotel. A preliminary scheme (shown above) has been designed by architects Pereira & Luckman.

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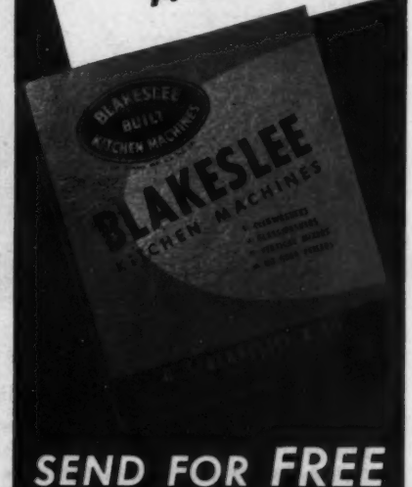

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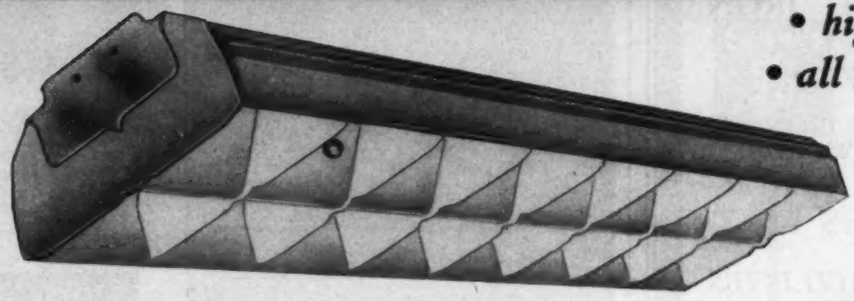

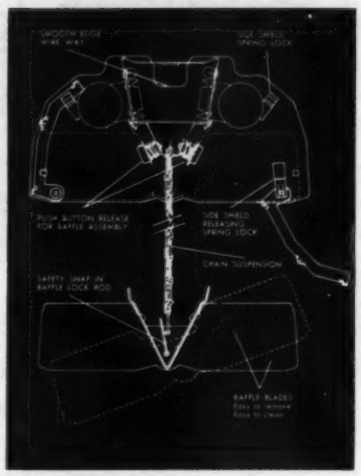

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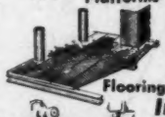

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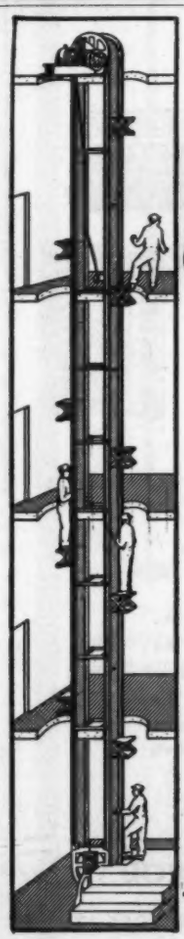

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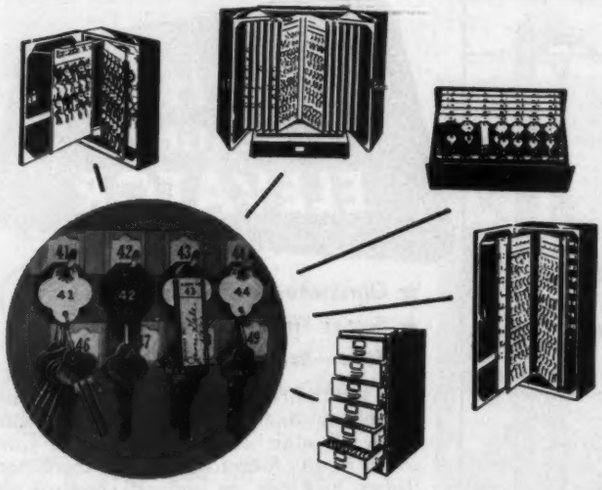

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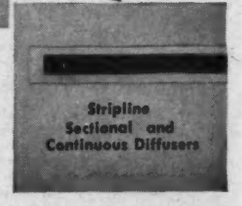

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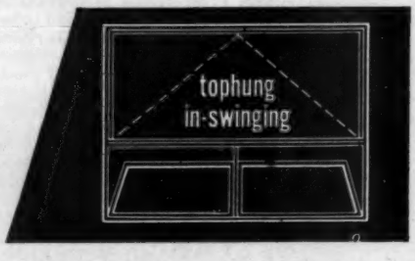

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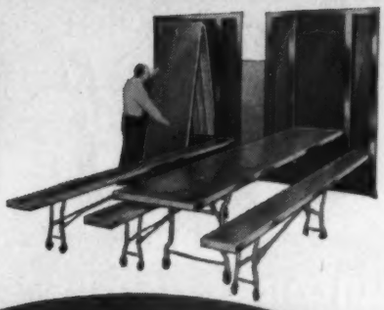

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REQUIRED READING

(Continued from page 48)

GERMAN DESIGN

Normen und Formen — Industrieller Produktion. By Wilhelm Braun-Felwey. Otto Maier Verlag Ravensberg (Germany) 1954. 160 pp, illus. $10.50. (American distributor: George Wittenborn & Co., 38 East 57th St., New York.)

You don't have to know the language to appreciate this German volume on industrial design and production methods. The text is beautifully illustrated with photographs and detail drawings of contemporary design from glassware to automobiles and heavy industrial machinery.

FOR THE HOUSE

Household Equipment. By Louise Jenison Peet and Lenore Sater Thye. John Wiley & Sons (New York) 1955. 444 pp, illus.

A detailed guide to equipping and planning a home, this volume is more than a pictorial listing of household equipment. The authors, well versed in their fields, have included technical information on the mechanics of running a safe and efficient household.

MUSIC BUILDINGS

Music Buildings, Rooms, Equipment. By the 1952–1954 Committee on Music Rooms and Equipment. Music Educators National Conference (64 E. Jackson Blvd., Chicago 8, Ill.) 1954. 96 pp, illus. $4.50

Keeping in mind the fact that school music rooms are a good deal more expensive than ordinary classrooms, the MENC has prepared a loose-leaf book with suggestions and plans for maximum utilization of space.

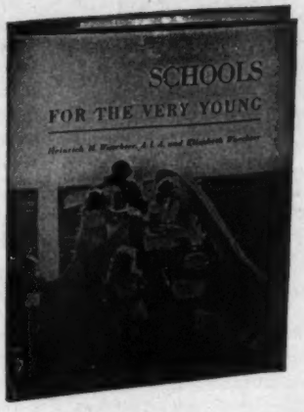
Types of music rooms and the comparative aspects of separate instrumental and choral rooms as well as auditoriums are discussed. Acoustics, illumination and color, heating and air conditioning, and equipment including audio-visual material are treated in detail.

The book also presents a discussion on effective and economic shell design including the evaluation and financing of such a problem. It even gives hints on how to develop community interest in a band shell!

The book is thorough — careful research is in evidence — and well illustrated. A lengthy bibliography is included.

Schools for the Very Young

by HEINRICH H. WAECHTER, A.I.A.
and ELISABETH WAECHTER



THOUGH many volumes have been written about school design, "Schools for the Very Young" is — so far as we know — the first in which an architect and a child educator have collaborated to provide an up-to-date treatise on the requirements of the particular type of school demanded for the proper training of the very young child.

Beginning with a brief yet adequate historical and philosophical background, in which the development of the theory and practice of child education is discussed, the book goes on to describe the pre-school in action, noting the events of the school day and the corresponding environmental needs of the children and their teachers. Examples of existing pre-schools are presented with critical comment. Detailed information is given concerning the space apportionments and arrangements called for by the activities peculiar to such institutions. Since one of the authors is especially concerned with city planning, the relation of the pre-school to its neighborhood and community is analyzed, and the many different types of pre-schools that have developed to meet special conditions are enumerated and explained.

The outdoor space and its proper equipment are thoroughly covered from the standpoint of a capable architect who has given much thought to the problem. Technological problems of construction, lighting, ventilation, mechanical equipment, etc., are scrutinized in the light of the most recent practice. A wealth of illustrations add both interest and information, and a selective bibliography will aid further study.

208 pages, 7⅛ x 10, stiff binding. Price $6.50.

Book Department, F. W. Dodge Corp.
119 West 40th Street, New York 18, N.Y.

Enclosed is $_____ for _____ copy(s) of "Schools for the Very Young" by Heinrich H. and Elisabeth Waechter at $6.50 per copy. (Add 20¢ for N.Y.C. delivery — $6.70.)

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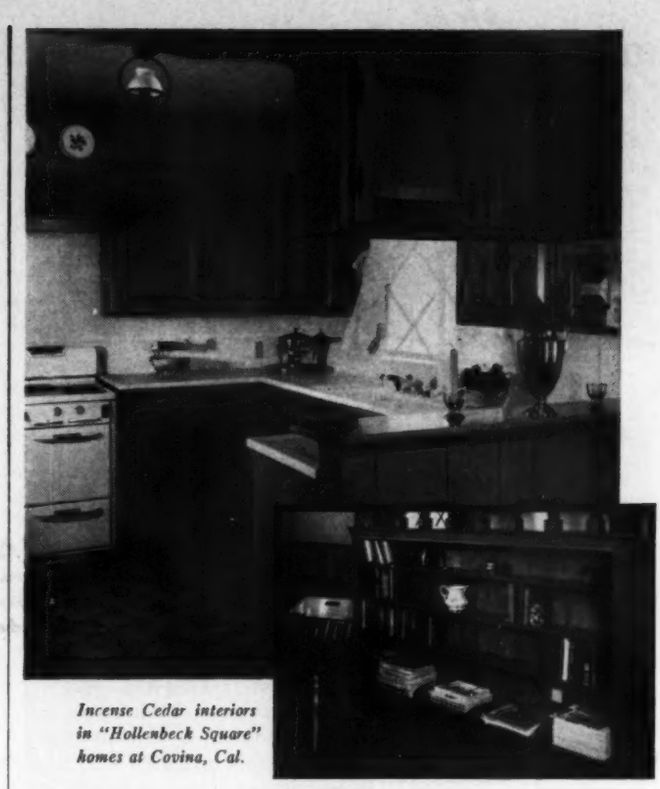

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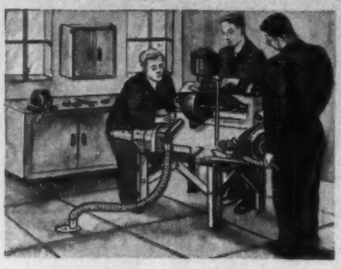

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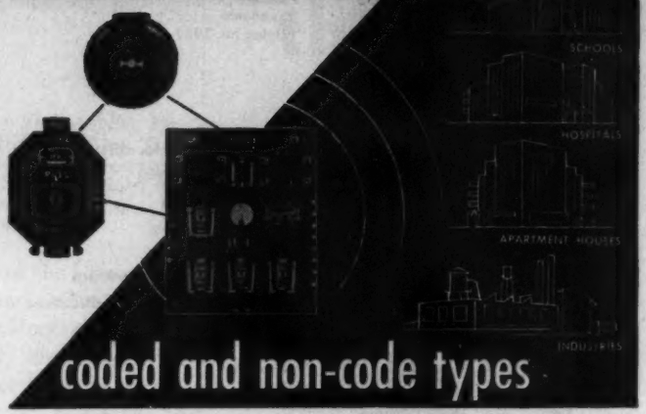

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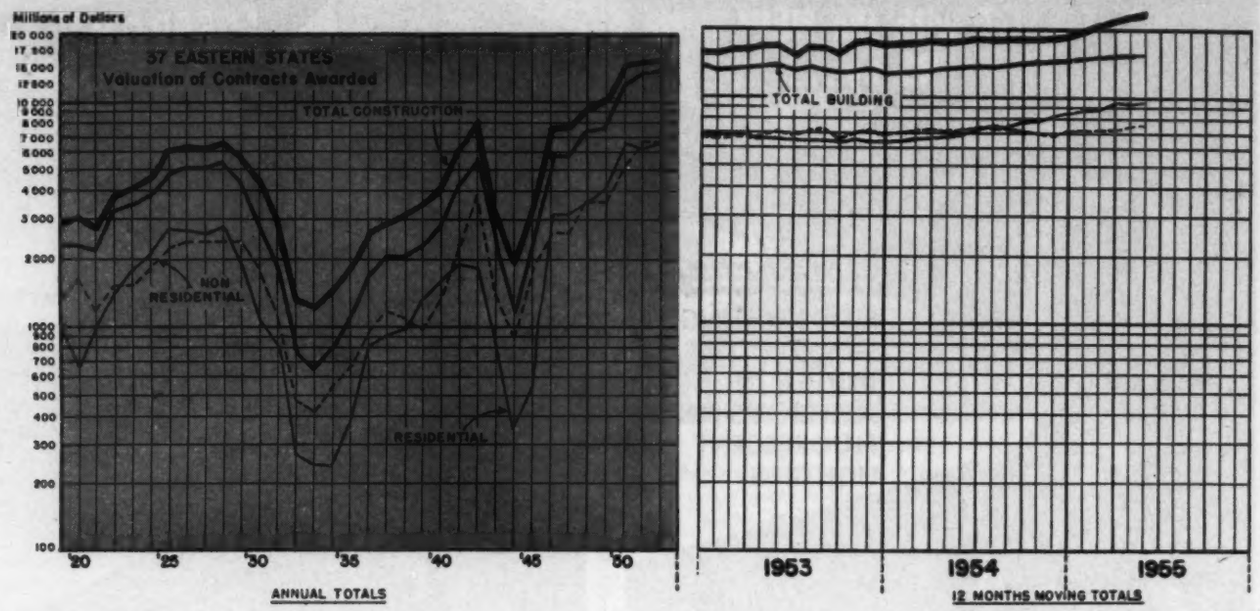


Charts by Dodge Statistical Research Service

MORE RECORDS, BUT HOMEBUILDING DIPS

The May totals for construction contracts awarded in the 37 eastern states as reported by F. W. Dodge Corporation set new records for the month in all categories and brought the cumulative total for the first five months of the year to $9,727,562,000, a new high for the period and 29 per cent above the previous high in 1954. But while residential building contracts, at $1,011,310,000, were 23 per cent over the total for May 1954 and at the second highest monthly level in history, they were down six per cent from the all-time monthly record set in the preceding month, reversing an upward trend which had held since November. It was the speculative field that slowed — contracts on houses built for sale or rent totaled $657 million in May compared with $693 million in April; this must also be compared with $518 million for May 1954. Houses built for owner occupancy gained over April as well as over May 1954. The five-month residential contract total of $4,505,626,000 was 38 per cent over the previous first-five-months high in 1954. Nonresidential building, $3,289,895,000 in May, was three per cent over April, eight per cent over May 1954; for five months it was up 20 per cent.

Source: F. W. Dodge Corporation

SCHOOL AND COLLEGE BUILDINGS*

Contracts Awarded—37 Eastern States

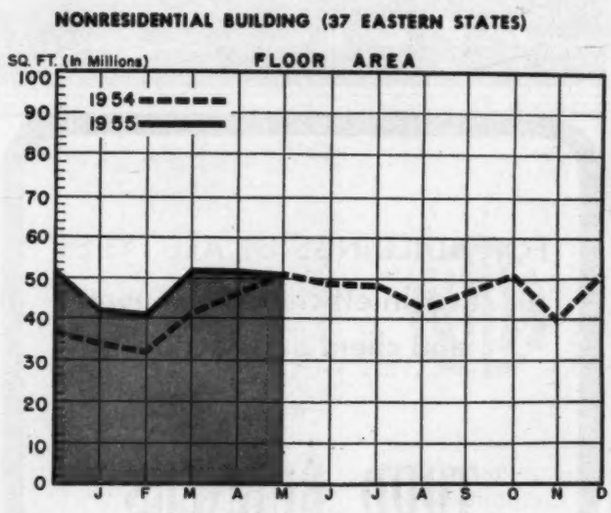
Number of Projects

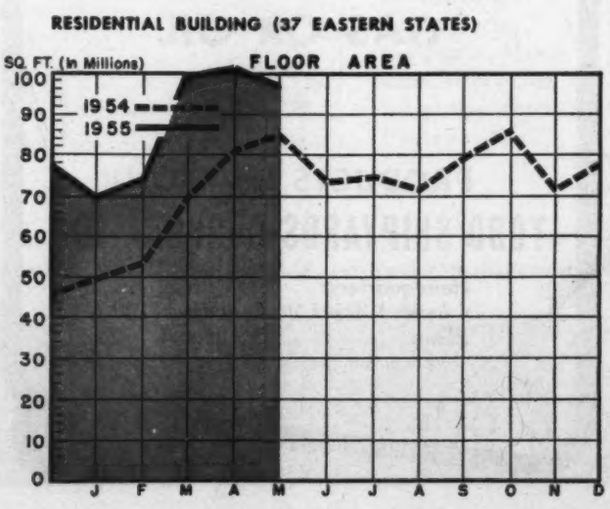
Year	Annual Total	Monthly Average	Year	Annual Total	Monthly Average
1929	4059	338	1950	5896	491
1935	3145	262	1951	5618	468
1943	2355	196	1952	6044	504
1947	2745	229	1953	7057	588

Monthly Totals

1954				1955	
Jan.	454	July	966	Jan.	438
Feb.	453	Aug.	772	Feb.	468
Mar.	663	Sept.	579	Mar.	668
Apr.	710	Oct.	500	Apr.	735
May	840	Nov.	396	May	841
June	929	Dec.	484	5 months—3150	
		12 months—7746			

* Schools are the subject of Building Types Study No. 224, pages 157–188





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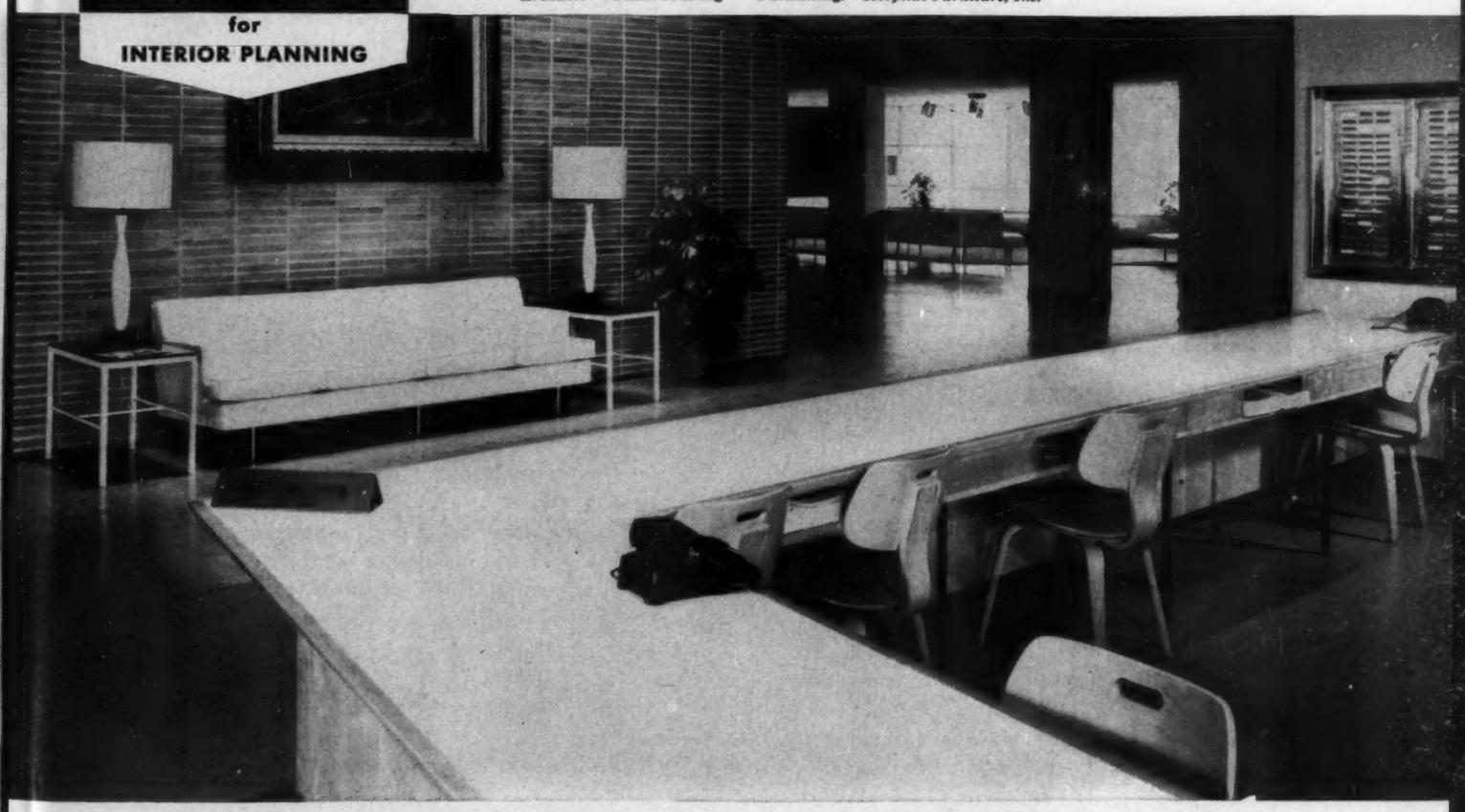

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